

A

T R E A T I S E O N A G R I C U L T U R E, INTITLED THE YORKSHIRE FARMER. In TWO VOLUMES.

This T R E A T I S E explains and exemplifies in a simple and demonstrative Manner, the several useful Methods of HUSBAND R Y, and of reclaiming BOG and MOUNTAIN, with T A B L E S of Loss and Gain, annexed to each Crop.

A L S O

A M O N T H L Y K A L E N D A R of W O R K S
to be done, as they come in Season throughout the Year.
To which is added,

The different State of the English and Irish Farmer, with T A B L E S annexed, shewing the Advantage of T I L L A G E, and how destructive G R A Z I N G is to the P O O R, and to the Improvement and Trade of *Ireland*, &c. &c. never before made public.

With several Cuts of M A C H I N E S, T O O L S, &c.

L I K E W I S E

Here is humbly offered to the L E G I S L A T U R E, and Friends of *IRELAND*, a S C H E M E for maintaining the P O O R thereof.

V O L. I.

By C H A R L E S V A R L E Y.

D U B L I N:

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Henry-street, 1766.



THE

INTRODUCTION.

AS my design is to make this small Treatise as comprehensive and plain as possible, to the capacity of my farming readers, I humbly conceive, that the best way is not to over-burthen their memory with long and tedious paragraphs; or to perplex them with a confusion of subjects and ideas; or to divert their attention, from any main or material point, by unnecessary digressions.

In short my intention is to instruct, and by no means to amuse my readers. The work is calculated for the apprehension of the simple and unlearned. To be useful to them, I must be as plain and intelligible as my subject will admit. And I have further endeavoured to digest and comprise the

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whole in as small a compass as possible, that it may attend on my readers as a pocket companion, a useful and ready monitor, and an instructive and constant friend.

For the foregoing good purposes, I have divided this work into two branches. One of which comprehends and specifies the respective receipts and instructions that pertain to the several departments in farming. The other branch is composed of remarks, explanations, and illustrations on the first, with such suitable references to the subject and page, as may serve to clear any difficulty or doubt in the reader.

As different countries have different names, whereby they express the same species of implements and methods in husbandry; and a knowledge of terms is indispensably necessary to the knowledge of every art; therefore I have inserted a list of such requisite or doubtful terms, to which I refer the reader.



What

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What I have here presumed to offer to the public, is quite foreign from matters of genius and speculation. It is merely a compendium and abstract of matters of fact, of personal experiments and observations, through a series and application of three and twenty years continuance. I have borrowed nothing from books, neither from the precarious information of others. All stands on the ground and proof of my own repeated trials, remarks, and deductions, throughout the kingdoms of England, Scotland, Wales, and Ireland; in each of which kingdoms I have repeatedly laboured for a number of years, and here deliver to you the product of all that I have gleaned, with the varying allowances and respective instructions, touching the difference of the climate, the culture, and the soil.

As the utmost of my ambition is, simply and clearly to convey my thoughts and meaning to persons of vulgar and mean capacities; should men of improved genius, of letters and precision, happen

happen to dip into this busines, I trust that, while they look down upon an author so much beaneath them, they will have the goodness to pardon the defects of a writer whose only aim and endeavour is, to be understood. But if here and there, they should find any thing deserving of their inspection or more particular attention; if they should find some grains of wheat in the midst of my chaff, or smaller parcels of gold in the mass of my dirt; the honour of having contributed, in any measure, to their advantage, will be to me a high matter of payment and gratification.

The instructions and directions, contained in this work, especially respecting times and seasons, are more particularly calculated for the wet-weather climates, such as Ireland, and the Northern parts of England, &c. Likewise herein I have set forth a kalendar of memorandums, so that my reader, (by turning to the particular page) may easily have a key to any particular day.

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lar month) may be reminded of the work he ought to take in hand.

Therein I have also added a table of different kinds of grain; and the quantity for each acre, both in the drill and broad-cast husbandry.

In this work will appear a cut of a machine which I invented, to harrow, and clear meadow and pasture-ground from moss; and also to harrow, sow, and roll corn with one man and two horses at one time; with other cuts for dressing flax, winnowing corn, &c.

Herein I have treated the more largely and accurately on hemp and flax, as they are the constituent materials of the LINEN-STAPLE, the foundation whereon the many consequent crafts, manufactures and advantages to these kingdoms arise.

The seed is previously necessary to the several degrees of the various operations that are built thereon. Should any nation or any man be ever so ingenious, and yet want the subject mat-

ter

ter whereon to exercise their ingenuity, they would be as a person proposing to take possession of a great estate, but who was seized at the setting out, with a dead palsey.

How happy might the inhabitants of Ireland think themselves, could they once see the time that they could supply themselves with flax and seed sufficient for their own consuption ; and on the other hand, who can without concern see the present insurmountable barriers to the flourishing of this branch, namely the high price of flax and seed ; the latter sells in the country from five to six shillings per peck ; is not this alone sufficient to deter a farmer from sowing any large quantity ? when the seed for an acre will cost about three pounds twelve shillings, or upwards.

The consequence of all this is not unknown to the honorable gentlemen in trust for that branch, and it is plain how much they have the interest of their country at heart from the many encouragements given upon any plausible

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ible scheme or proposal for removing this principal obstacle to the prosperity of Ireland.

With respect to the Dutch invention of dressing flax by water mills, their pernicious effects in spoiling the flax by breaking the harl or skin, and making tow of it, have been so frequently experienced, that those mills are now held in general disesteem, and are in a great measure laid aside. It is well known to the hacklers, that the best flax is that which has a clear open harl; that is, the skin hanging as it were in ribbands, clear from the tow, and knots; flax in this state will split or divide into fine long threads, and both be better in quality, and yield more tear than that which is beat into a matrass of tow, by the irregularity of a mill. The hacklers of England are sensible of this, as they will give eight or ten per cent more for some men's dressing than others, tho' they be clean from shaves and of the same flax; but indeed it is not to be wondered at, as reason will tell

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tell us, the more the harl is broke, and drawn to knots, by an unskilful hand, the more of it will go into tow and waste.

A person who would give his opinion of the product of any country, or what perfection it has arrived to in the commodity it produces, must form a judgment, by duly considering what state that country is in; whether the necessaries of life be cheap or dear; if they are high, he may reasonably think that labour is high also; but if said country can afford their products lower than their neighbours, it is a sure sign that they pursue a better plan of management.

The consumers of any commodity will doubtless find out the cheapest market for laying in their materials.

Manchester, Stockport, Chester, and Liverpool, manufacture a great deal of flax, and tho' they can have foreign flax laid down at their doors, and six or twelve months credit; yet, they had rather go to the markets and fairs in

York-

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Yorkshire and Lincolnshire, and pay a heavy land-carriage, and ready money for English flax, than have the former.

Stockport is a noted place for checks, and I have often heard the merchants say, that they would never buy a pound of foreign flax, if they could get sufficient of the growth of their own country.

Were Ireland mistress of this branch, her advantages would be much greater than England can boast, as her climate and lands are at least equal, and labour and living considerably cheaper.

The augmented price that flax and seed bears of late years is very visible. Quære, Is it not possible to over-load the main wheel so as to disorder the whole machine, or in other words, may not the attention be too much engrossed with the top of the branch so that the root or very foundation may perish? For there is no making cloth without yarn, no more than yarn without flax.

It

It is beyond contradiction, that no way can be so proper to make a thorough establishment of this branch as to begin at the root or foundation, to distribute those large sums amongst the poor, for raising flax and seed, and not to leave it in the power of every gust of wind and frown of an enemy to interrupt or baffle our schemes.

I have often observed the many vigorous attempts made by the honourable gentlemen in trust, to establish this branch, and as often guessed the rock it would split upon. I was not mistaken, for it is well known, the flax-seed that fifteen or twenty years ago would be bought for forty shillings a hogshead, now cost from four guineas to five pounds and upwards, and the flax also high in proportion.

This augmented price would not have struck me so much had there been any visible rise among the English raised flax and seed, but there is not, for I have had a continual intercourse of dealing between this flax country and Ire-

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Ireland for upwards of twenty years, and find that their flax and seed bears much the same price it did so long ago. Tho' the land-carriage from Parkgate to where the flax is grown in England, is upwards of 150 miles, yet I am now applied to by a flax-dresser in Dublin (who has proved the value of the English flax) to import him some from thence.

It is true, England has gained the art of raising as great or better flax and seed than any imported; and in two places in England large quantities are raised; the first is in Norfolk, the other which is more considerable, is a large tract of country which reaches from near the city of York to the city of Lincoln, in which there are several considerable markets and fairs for flax and flax-seed, hemp and hemp-seed, namely, in Yorkshire, York, Howdan, Coward, Selby, Wighton, Snaith, Pontifract, Thorn and Doncaster, beside several of less note. The following is in Lincolnshire, viz. Lincoln, Gainsborough, Ep-

Epworth, Axa, and Swimfleet; and Lin and Wisbige in Norfolk.

In these markets it is common for flax to sell at nine shillings a stone in the rough; however, do not imagine that this high price is owing to a scarcity of foreign flax among them; for Hull is a sea-port town, where foreign flax sells lower than in Dublin: therefore it is the real merit of English flax which fetches the price.

Perhaps my readers may think I talk like a traveller, when I tell them, that I have seen in Lincolnshire, a piece of flax-land, containing sixteen hundred acres; but however it is fact, and this all sown with seed of their own saving.

I do not wonder that the gentlemen of Ireland should be strangers to this flax country, as it lies out of the road to any public place, as Bath, London, &c. and as these flax farmers seldom go abroad, their art is not likely to transpire to Ireland, without particular encouragement.

In

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In the year 1760, I lived in Cheshire, and in said year sowed about 20 acres with flax-seed; but as every one there, was a stranger to said branch, (there not being any grown within 100 miles of the place). my undertaking was laugh'd at; and even a flax-dresser pretended to convince me, that I could not raise flax there worth 20s. a hundred; but soon after I sold himself some for 60s. This encouraged several of my neighbours to sow the following season.

In 1761, I sowed 63 acres with seed of my own saving; from this crop I raised upwards of 600 bushels, and the flax was good also.

In 1762, I sowed 30 acres in Wales, and succeeded, and sold some of it to the Isle of Man, which was imported to Ireland by the name of American seed.

I mention these particulars to shew how easy it is to introduce this branch by a person versed in it, and could have men and machines from the flax-country.

TO

TO THE
RIGHT HONOURABLE and
HONOURABLE
THE TRUSTEES
OF THE
LINEN MANUFACTORY
OF
IRELAND.
THIS
TREATISE ON FLAX
Is most humbly inscribed,
By Your HONOURS
most dutiful, and most
obedient humble Servant,
C. VARLEY.

Q.T.





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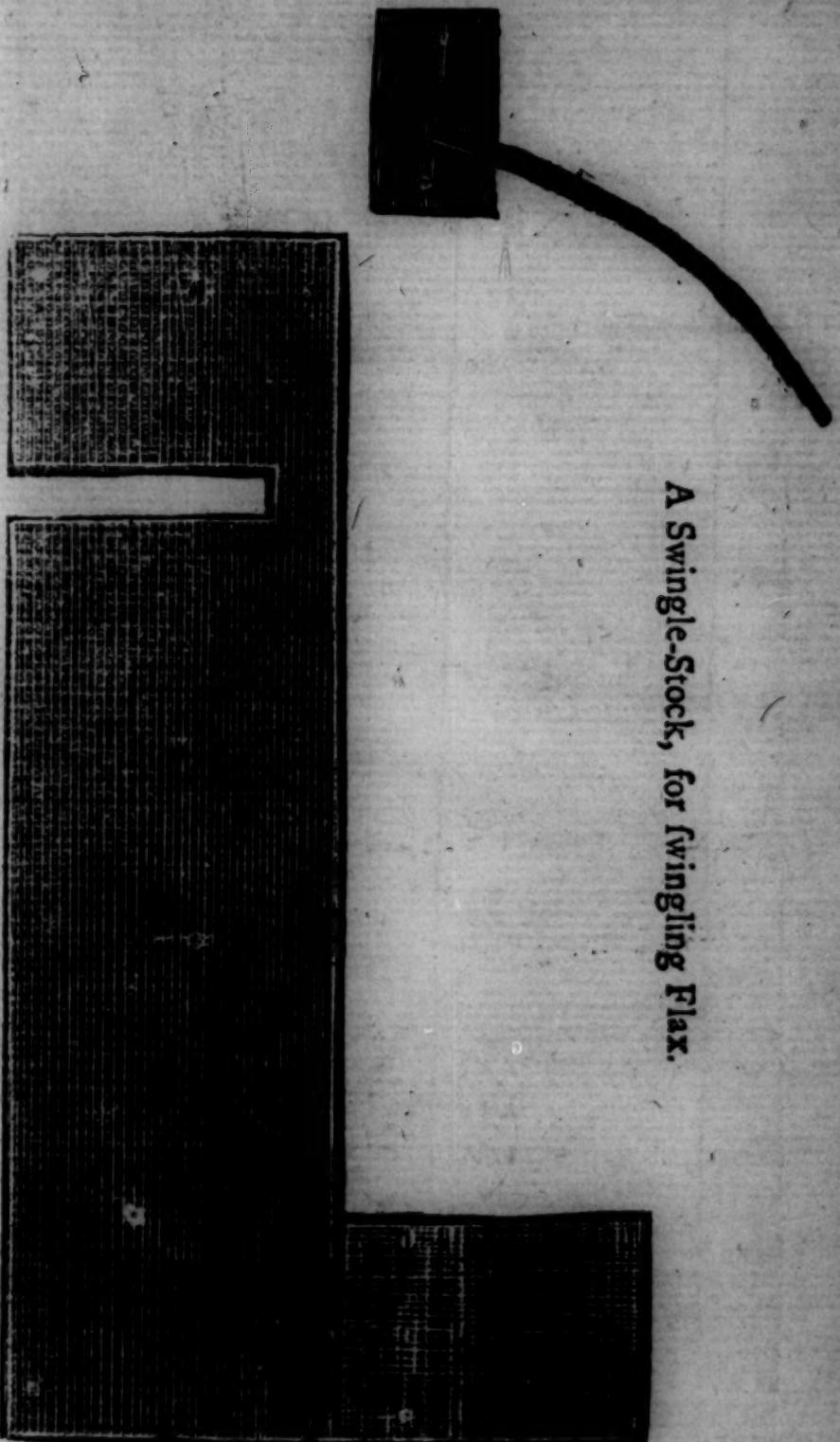
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A Beater, to take Flax-seed out.



A Swingle-Stock, for swingling Flax.

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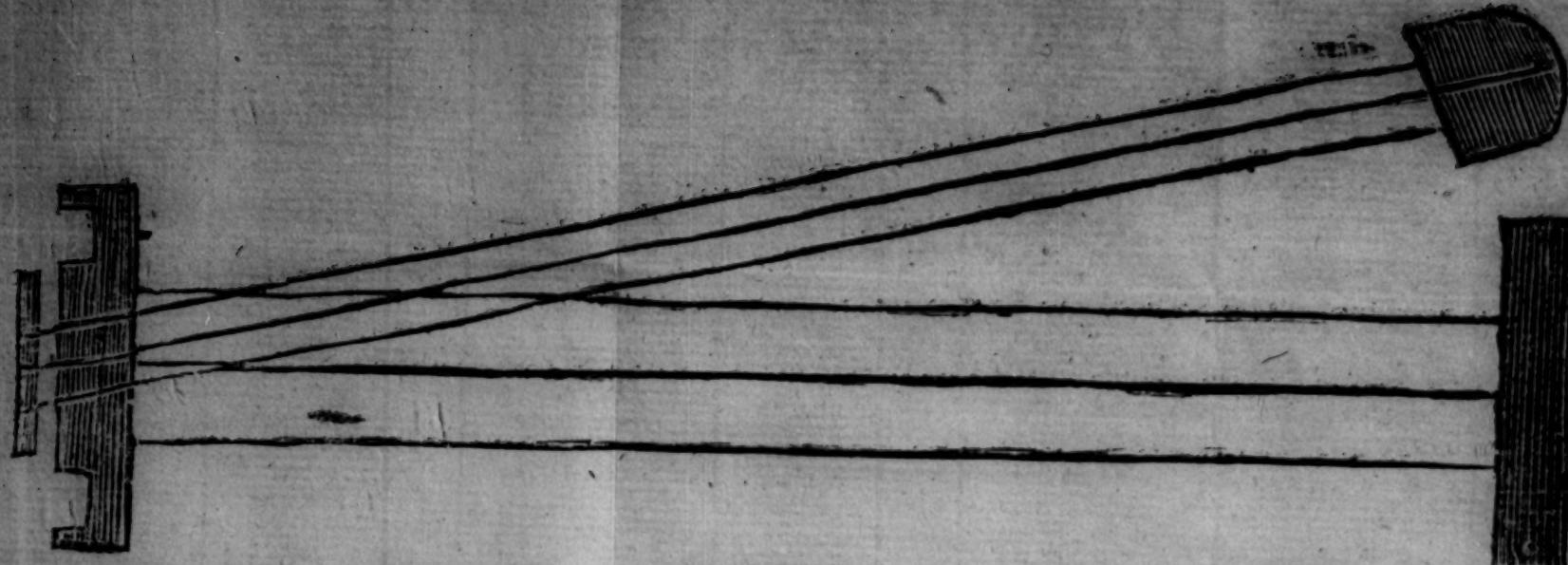


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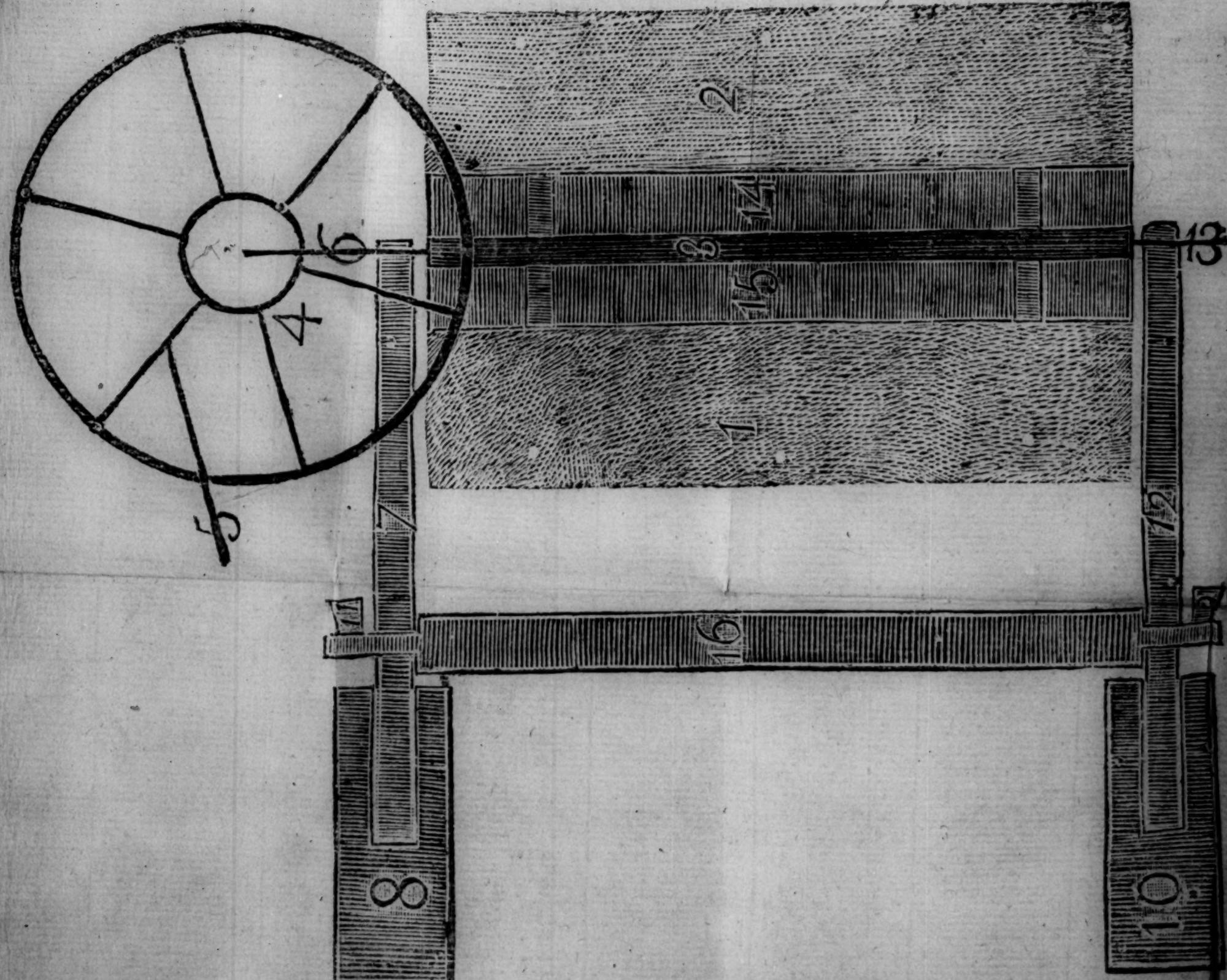
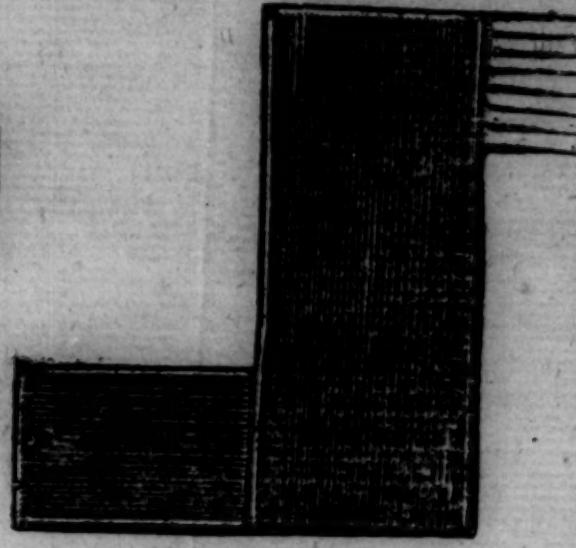
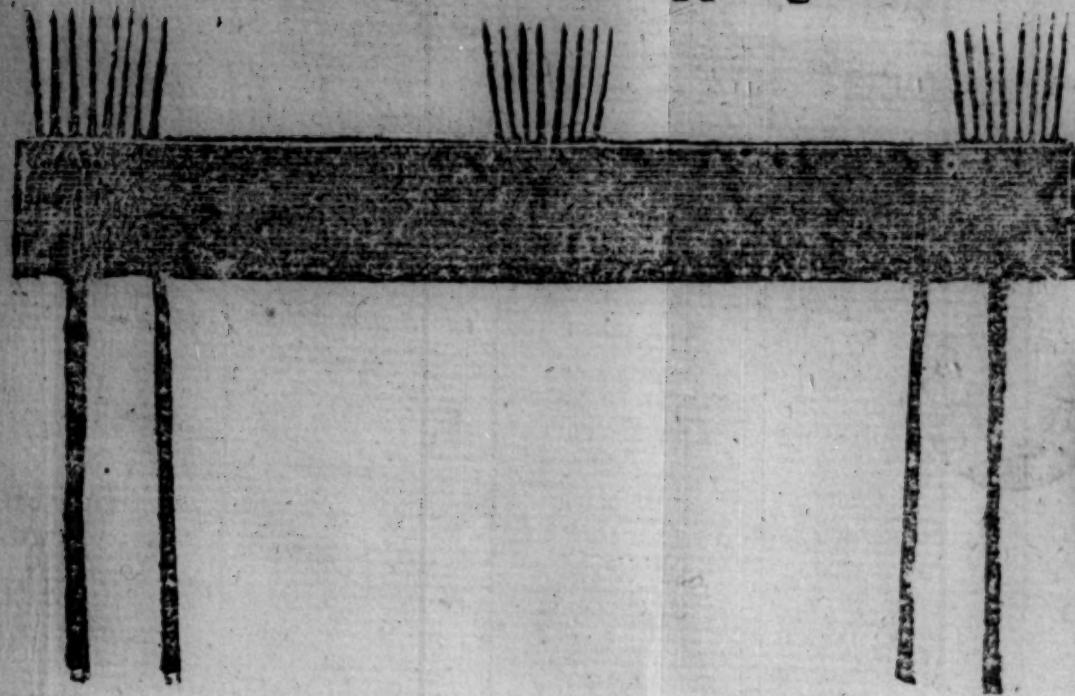
A Pair of Breaks for breaking Flax.

A Swingle Hand.



A rippling Comb for rippling Seed.

A Foot Hackle.



Explanation of a winnowing Fan.

5 is the Handle to turn by, which is fastened in a Spoke of the Wheel 4, 6 is a Gouging which lies on Standard 7, and goes into the Axle-tree 3, 14 and 15 is Boards, of which there is 4 which forms across; to each Board is nailed a piece of Sacking, as 1 and 2, about 24 Inches broad, each 13 is a Gouging which lies on Standard 12, these Standards 12 and 7 is about 4 Feet and a half high, 2 Inches thick, and 4 broad; they are mortised into 8 and 10, which is about 1 Foot broad, 3 long, and about 3 Inches thick, 16 is a cross Bar which goes through Mortises in the Standards at each End, at outside of the Standards is a Mortise, into which goes a taper Wedge to draw the Bar close up to the Shoulders, in order to keep the Fan steady. This is believed to be the most useful winnowing Machine that has been as yet found out, and a farmer may make one up for about a Guinea.

THE
YORKSHIRE FARMER.
Book the FIRST.

REMARKS on FLAX.

There are several denominations of Flax.

1. White Flax.
2. Seed Flax, in imitation of White.
3. Black, or Bunch-rate, in imitation of Blo, or black Dutch.
4. Dew-rate Flax.

THESE require each a different management, therefore I shall treat of them separately, except what relates to land or sowing, which will be set forth in the first chapter only.

Tho' flax is a nice crop to bring to the hackle in full perfection, yet as to the growing part of it, there is nothing

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more easy; and as the climate and lands of Ireland are really very good for this crop, together with the high price that flax and seed bears, and the great encouragement given by the honourable Linen-Board; I say, I hope all these advantages, with the assistance of the following hints, will make this branch flourish as much as is desired by every well-wisher to Ireland.

Indeed, it must be allowed, that the linen branch (take it from the hackle to the bleach-yard) has arrived to a height almost to rival any other nation, thanks be to the worthy, honourable, and indefatigable gentlemen in trust thereof.

But as to the raising flax and seed, we may justly pronounce Ireland to be in her infancy, insomuch that she runs counter in every part that should make for this so valuable a branch.

However, she is rather to be pittied than



than blamed, as she has always been kept in the dark, not having either personal, or even theoretical lessons to go by. It is as clear as the noon-day, that no author has ever treated on this subject that really understood one half of it; for it is almost impossible for any person above a common labourer, to be a true judge thereof.

If this be the case, (as it certainly is) how is it possible for a gentleman writer bred up, perhaps in London, or some other great town, to give thorough lessons, himself knowing no more than what he gethers from this and that hear-say.

On the other hand, this branch was never likely to transpire by personal lessons, as I doubt whether there be a man in Ireland, that really knows how to bring a stone of flax to its full perfection fit for the hackle. I have travelled all Ireland over, but never as yet saw an instance of it.

What

What can we say then, is not this a heavy clog upon the main wheel? Is not Ireland rowing on troubled waters, by fetching her materials from abroad?

What a happy thing would it be had she such markets in herself as I have hinted at in my Introduction. I have flax by me now in Dublin, that was bought in those markets, better by 20s. a hundred than ever was raised in Ireland.

Tho' I was brought up in the midst of the said flax country, where every farmer round me had, perhaps, from five to sixty acres, and tho' I grew a great deal myself, and paid close attention thereto, yet I found myself greatly deficient 'till I betook myself to the manual part thereof; and tho' I was as great a proficient as most of my neighbours, yet when I came to grow flax in other countries, and make use of other waters, &c. I found I had more experience to gain before I was thorough master

master of it, which cost me very dear, as will appear in the following sheets.

The thorough knowledge is not to be got without repeated experience, a close and even laborious application.

I find in every country, that old lay land answers best for flax, as it is generally free from weeds, and is least subject to lodge, and also produces a finer and thicker skin, likewise not so apt to have cankered rusty black spots in it; besides, flax on such land, is a good preparative for wheat, as it hardly ever misses of a good crop.

All sorts of fallow or stubbles, provided they be enriched with any kind of manure, will bring flax; but as lay-land (for the above reasons) is so much better, I would advise my reader to make it his choice.

Avoid rating flax in limestone-water, this piece of experience I paid very dear for.

Lime-

Lime-stone water fell in my way but twice, once in Ireland and once in Wales; in the first, I had my choice of two sorts of water, namely, lime-stone and bog, the latter was inconvenient, but the lime-stone water was very near me, being a fine standing pool under a lime-stone quarry. As I had never heard any thing against such water for flax, I had well nigh determined with myself to water in it; but on second thoughts, as I was not necessitated, I thought my flax too good to be risqued by experiments, therefore I escaped for that time.

In Wales, however, I had not the same good fortune, tho' I did not run into the trial designedly.

Through my land run a small rivulet which traversed some low meadow-fields; in two of these fields, I made in each a flax-pit by the side of the river, which I could fill at pleasure.

At

At a small distance, was a lime-stone quarry, out of which came a spring, which helped to feed this rivulet: one of the pits was opposite to the spring, and the other above it, so that I could turn the spring below both the pits into the rivulet, which I accordingly did.

Thinking myself well provided with water, into each pit I put four acres of good flax, sodded and tressed as usual; but some person (whether for mischief or not I cannot say) opened the dam that was opposite to one of the pits; thus they served me three nights successively. It had been seven days in the water when this happened, but scarce began to rate, as I tried it every day.

I immediately found the bad effect of the lime-stone water; upon which I took it out the fourth day after this happened, being in the pit only eleven days; but it was quite spoiled and rotten, except

cept some bits in the middle of a sheaf, or in the corner of the pit where the lime water had scarce reached; and this was green and nothing better for going into the pit. In short, it was spoiled to such a degree, that I never made use of a handful of it.

The flax in the other pit that escaped the lime-water, lay there five weeks, and got no more than a sufficient rate, and was so good, that I sold some of it for sixty-four shillings a hundred weight in the rough.

The long time that this lay in the water, shews what difference there is in water; for I had some water in the same land that watered flax well in twelve days; and I have had water in other countries, that has rated flax well in six days.

My experience of deep water cost me yet dearer, as I lost upwards of two hundred pounds worth by it in

one

one year, for the quantity was very large.

This was in Cheshire, where marble pits are very plenty, and some of them very large and deep.

I always knew that flax never rated kindly in deep water, but never so fatally experienced it as here. The surface is warmed by the sun, which will set the upper part of the flax a rating two or three days before that which lies four or five feet deep.

This is one great reason, why it is so necessary to tread the flax in the pit, in order to mix the water, that it may rate even, or in all parts alike.

The water in these marble pits in Cheshire, are very good for rating flax or hemp in, where they are of a moderate depth, but they are often from six to fifteen feet deep.

By a mistake in a direction, I had seventeen large waggon loads of choice good flax put into one of these large pits, the consequence of which was, that I in a manner lost the whole. But indeed this was not the only time I suffered by deep water.

It is much the safest way to make pits to a proper size, if there be none by chance that are suitable.

In Lincolnshire, it is very common for labouring men to dig pits on the commons, and let them to farmers at so much a year, for rating flax in; not but the farmers have the same privilege of making pits, but they may buy them from a poor man cheaper, as he makes them at spare times, when he has no other work.

It is common for a poor man to sell a pit that will hold seven or eight acres of flax, for three half crowns, and so in proportion.

The
I. lo

C H A P. I.

Directions for plowing, harrowing, sowing, pulling, watering, grassing, and full management of white flax till brought to the backle.

THE ground for flax being fixed upon, begin to plow about the first of March, with a furrow of about nine inches broad, and between three and four thick. Take care that all the land be clear cut and turned, and that it lies flat and even with the grass side downwards. If the ground be stoney, or the ploughman bad, men with spades must follow the plough to turn what it misses.

By the middle of March the plowing must be finished; and it must then be well harrowed to raise plenty of mold, and to scratch the roots of the grass, in order to kill and set them a rotting. By this they will become a rich manure, for any other crop that may

may follow; thus harrowed, gather all the sods and stones off, and throw them into the furrows. When this is done, sow the seed at the rate of 12 pecks to a plantation acre, which is about one third larger than an English chain one.

Lady-day, or as near it as the weather will permit, is the best season for sowing flax-seed. When thus sown, turn the harrow the wrong end foremost, and run the ground over once in a place. When the seed has been about a month sown, roll it, and in about a fortnight more weed it; but if it be lay-land, there will not be many weeds; however, it must be gone over, and none left in, as they are very pernicious enemies to flax.

Being thus cleared from weeds, the business is over till pulling time, except it be a very strong crop, and a rainy season; in this case it will lie down or lodge, and not feed well, but be apt to

to spoil before it is ready to pull. The only help against this, is to send two men, one at each side the ridge, with turning rods, about the size of rake-shafts ; they must put the rods under the top of the flax, raise it up and turn it over.

This is not very expensive, and will prevent it from mildewing, and otherwise greatly help it, till it be ready for pulling, which must be as early as possible ; for this sort, above all others, must be made white flax, tho' indeed it will never be so good as that which stands upright, as it will not feed well, and the shove being soft, is apt to flat in the working, and not part freely from the harl ; the skin of such flax always is thin and tender.

This sort of flax generally grows on rich land, or under hedges in a warm situation, which draws it up tall and weak. This makes it necessary to divide your crop into white and feed

seed flax, as almost in every field there is a variation, which may be laid out for both sorts, in a profitable manner, provided it be done with judgment, and rightly timed.

As there are several sorts of flax that may be made, and that every sort requires a different management, I will first conduct my reader thro' the management of the white flax, from the pulling to the swingle stock; and then return to the seed flax.

The white flax being fixed upon, if it answers the following tokens it is ready to pull, viz.

If the seed be perfected in shape, but not half ripe: if the leaves begin to wither and fall off, about one third of the stalk from the bottom upwards: if the stalk turn a pale yellow: if the buttons or holes will strip, each separately, and take with them a string of flax to the root without breaking.

The

The last experiment holding good, is a sure sign that nature has done her work, by giving the flax a good skin, and that all the way up to the top of the stalk; for sometimes it does not get so high as the top of the stalk. If these remarks concur, the white flax is fit to pull, and you may fall to work.

Tye up the sheaves to the size that a band of about eighteen inches long will reach round each sheaf. Make the bands of the small under-growth of flax, or of weeds, in order to save the good flax, as the water renders it of little use if it be knotted when rating. Be mindful in pulling, that you do not place your hands too low down, so as to pull up any weeds, or under-growth of flax, which will spoil the good flax both in watering and working. The smallest part of the flax is close under the boles; this is the place to lay hold of it for pulling. Your hands being thus placed, what does not reach so high as to be taken hold of, is of no use;

use; leave it on the ground rather than spoil the good flax with it. As much of the flax as is pulled one day, must be put into the water the next; for if it be too much dried or withered, the consequence is bad.

The water most proper for rating flax, is that of the softest nature; bog water is good, and so is that of a clay or marl bottom. But above all, take care the water does not come through or from lime-stone quarries.

You should make choice of no larger a pit than what will barely contain your flax, for the lesser the quantity of water, the better the flax will rate. The pit should not exceed three feet and an half deep, and about fifteen feet broad, the length to be proportioned according to the quantity of flax you have to put therein. It is further adviseable, to have three or four partitions across your pit by the way of dams (which partitions are easily left when the pit is making)

ing) and these will prevent the communication of any excess of water.

When you begin to put the flax into the water, lay the first row across the end of the pit, with the root end uppermost; but lay all the rest with the seed end uppermost, and let no part of the flax but the seed end be seen; for before it is pressed down, it will stand almost upright in the pit.

If one cess or row be not sufficient to fill the pit, lay on another and another, but the water ought to be no deeper than that three rows at the most will fill. It must be filled to such a firmness, that a man may walk all over it with his shoes on without being wet.

Being thus in the pit, begin at the place you left off laying the last row, to sod it. Lay the sods close to each other, with the grass-side downwards, so that the least bit of the flax may not be seen. The sods must be cut

thin like scraws, but not above two feet long, and one broad; and they ought to be ready at the pit's side before your flax is pulled.

Your flax being thus sodded, you should tread it so as to fetch water above all the sods. But if it be sunk so stiff, that the treading of one man can't get water over the sods, let three or four stand together, or one man carry another on his back. This often happens to be wanted, particularly when the flax begins to work and swell in the pit, as it will do two or three days after it is put in.

I never had flax better watered than when it took a great weight in treading: I often trod it with an horse, and when he disordered the sods, took care to lay them right again.

It must be trod three times a day, namely, morning, noon and night: the more it is trod, the better it is, as it

mixes

mixes the warm upper surface with water, which makes it work like new ale in a guile-fat, which works the faster the oftner it is stirred.

This may seem an odd comparison to those that do not understand it; however, it is fact, for it will froth and work up surprizingly in the time of its rating, and particularly just after treading. Let no water in, or out of the pit, while the flax is in it.

No certain time can be fixed that it will take in the water; circumstances in this case differ, respecting the heat or coldness of the weather, the softness or hardness of the water, or the goodness or badness of the flax; for good flax will take more rating, than bad. I sometimes have had flax as well rated in six days, as at other times in a month, so much do circumstances differ.

The

The following tokens for the well-rating of flax are to be observed, viz.

If the first four or five days after it is put into the water it swell till it is at the heighth of working; and after this, if it fall till the water comes over the sods.

When it has been about five days in the pit, take out a sheaf, and try if it be very flippy, and if the stalks break and start out of the skin when doubled, and if the skin peel freely from the stalk, also if the seed or boles shake off with freedom: these are all signs of its being duly rated: but the safest way is to take a piece out every day, and dry it on a bush; when dry, break and scutch a handful; and then if the stalk break and part freely from the skin, it is a sure sign of its being sufficiently rated. All these tokens will assist you in this material point of rating.

Your

Your flax being thus rated, take it out of the pit, and let it drip a day on the pit's side. Be careful that it be laid straight in pulling it out of the water, for the doubling of it when wet, will chafe and damage the flax.

When it is drained, carry it to the ground for spreading. Cast the sheaves at about the distance of two yards from each other; and in the casting let care be taken that they do not fall on the ends in a break-neck manner.

Let the spreaders begin at one side of the field, and lay the first row straight, or it will disorder the whole. Spread it thin and even, without lumps, or crossing, and with all the heads one way.

The best land for spreading it on is meadow, lately mowed, or for want of this, a pasture field clear of thistles, docks, &c. which would keep the flax from the ground, and give the wind an opportunity

opportunity to blow it away and ravel it, whereby it would be rendered of little use.

Bog might do for spreading on, but the forementioned grounds are preferable; moreover it serves to fertilize the soil by the oily slimy substance being washed from the stalks, by the rains.

When the flax is thus spread, let it lye about eight or ten days, till you observe the skin to rise from the stalks at the top branches, where it is crooked, or has a bend; in these places the flax will rise from the stalks, and almost resemble fiddle-sticks by the hair being stretched along it: when this comes to pass, take care to turn it with turning-rods prepared for that purpose, about the size of a rake shaft, running them under the top end of the flax, and turning it over, leaving it in the same position as before, thin, straight, and clear of lumps.

A good

A good hand will turn two or three acres in a day. It is not to lie as long after turning as it did before, but however, it is necessary to get some dews or rain in order to give it an even colour on both sides before it is taken up.

Sometimes it happens, when the flax is taken too soon out of the pit, that it must be turned two or three times in order to bring it to a right consistence for working.

Take particular care that the worms do not damage the flax by drawing it into the ground and chafing it, which sometimes happens, particularly in spring rates, and where the ground is bare of grass. I have seen great damage done in one night by the worms in this case.

When you find your flax answer to the above description of rising from the stalks like fiddle-sticks in crooked places,

places, &c. it is well watered and grafted. Take it then into the barn for breaking and swingling.

But before I go any farther, let me caution my brother farmer to be particularly careful, through all operations, to keep his flax straight and even at the roots, and the root-ends all one way; this being a very necessary precaution in order to make it yield well to the hackle, work easy, and sell well, &c. &c.

As I have now done with the white flax till the breaking and swingling, I shall drop it for the present, and proceed to the seed-flax in imitation of white.



On Seed-flax.

TH E R E are several reasons to be given, why the seed flax has not a right to be so good as white flax, or such as is watered with the seed on.

First we are to consider that flax-seed is of an oily nature, and that this substance is conveyed thro' the skin, or bast (as it is called by some) up to the seed, and as it is on its journey, as it were, dispersed thro' the length of the stalk, it is pulled for white flax, by which it catches the oil in the skin, where it remains, instead of reaching to the seed.

The intent of watering or rating flax, is to rot the stalk, in order to make it part freely from the skin, when dressed, as also to soften, purge, and cleanse,

or discharge any unkind harsh matter from the flax, but the oil being so stagnated, preserves the flax from rotting in any reasonable time, not letting the water have the power over it, as it has over a poor substance: were it possible to extract all the oily substance from the flax, it would be left as poor as the stalk whereon it grows, consequently would rot in the same time, and be rendered as useless.

This confirms my opinion, that the less quantity of water the flax is rated in, the better, silkier, and stronger it is made by the oily substance which it is permitted to retain; for the best particles gather and cling to the strongest body (being the flax,) which makes it weigh heavy, adds to the strength, and makes it of a kind soft, silky nature.

I am confident, if were a parcel of flax-feed thrown into one of these pits, for some considerable time before the

flax was put in, that it might have time to incorporate with the water, it would have a happy effect, and considerably add to the goodness of the flax. I do not say that it would be worth while to do this, further than by way of experiment and proof.

— I have thrown chaff that has had some light seed amongst it, into a pit, and found it to be of service.

An old pit that has had flax watered in it several years, is far better than a new made pit; and one that has white flax with the seed on watered in it, is better than one that has been used for bunch-rate, or flax that has had the seed taken off.

All this I have seen experienced by others, as well as myself.

Now, seeing it's so absolutely necessary for the good of the flax to preserve this oily kind nature in it, in order to keep

keep it from rotting, and make it kind, soft and silky; what a piece of absurdity it is to drive it out by drying it over the fire, as is universally practised in Ireland?

In short, it is rendered harsh and brittle, so that it loses considerably in its real weight and goodness, and thereby loses in its value.

In order to be convinced of this, weigh as many sheaves as will, when breaked and swingled, make two stone, one half of which dry over the fire, the other half dress without, and it will be found that when both are dressed, the difference in weight will be from a pound and a half to two pounds; a great loss in so small a quantity of flax.

The English flax-farmers are so sensible of the real evils that attend drying it, that they will not suffer theirs to be dried in the sun. It is true,

when

when it is taken up off the grafts, it is dry, tho' indeed some chuse to take it up in an evening when the dew is falling.

No one that is not necessitated will offer to dress any flax 'till it gets a sweat in the mow or stack, which adds to its soft silky nature, as well as weight; and after this sweat, it is never suffered to be dried in any case.

But then we are to consider that the English flax-farmers are true judges in rating their flax; which, if not done properly, it is hard to be dressed well, even with fire, and much more without.

They have also other kind of tools to break and swingle it with than any in Ireland. The quantities that are raised in England could never be manufactured in such a paltry manner; were fire of no real damage to the flax, it would add so much trouble and

ex-

expence of drying, &c. to a farmer's other busines, that it could never be duly attended to.

One acre managed in the Irish manner, would give as much trouble as an hundred would in the right English method; for when it's once in the barn, it is scarce of as much trouble as corn, having no more to do than agree with men to work it, and this is mostly a set price, except it misses of a good rate, (which may sometimes, though rarely happen) or if the flax be very short; in this case there is a consideration of an higher price. The common rate for dressing white-flax, is fourteen pence a stone, for breaking and swingling; and sixteen pence for seed or bunch-rate flax.

High or low wages is made according to the cleverness of the workman, from the difference of a shilling to three on a day, for there are several degrees of workmen: a good work-
man

man is as well known through the flax countries of England, as a justice of peace or a sheriff in an Irish county.

It is necessary that a farmer look over his swinglers sometimes, to see that they make no waste; as also that they dress it clean, for on this his success and sale in the market depends.

Some workmen will make the same flax sell higher than others by six-pence or eight pence a stone, and all the flax buyers know the good work-men by the lapping or making up of the flax.

A good work-man is seldom made, if he does not learn when young, it is far easier to make a good hackler than a good swingler, tho' the former is a trade of apprenticeship, and the latter is not.

The swingler generally has a pair of scales by him, and weighs the flax as he

he dresses it, then takes it into his master, who seldom weighs it, till he gets two or three packs together, to take to the market.

A great deal depends on giving flax a good even colour for fetching a good price in the market. Let the colour be what it will, it ought to be of one sort; not to be striped or spotted with black and white, or green and white, grey and blue, or green and yellow, &c.

The misfortune of these mixed colours is got before it goes into the water, particularly if it be seed-flax of any kind; for the prevention of which, I ordered seed-flax, in imitation of white, to be stacked with the seed-end outwards; this prevents the out-sides of the sheaves from being weather-beaten, which will turn them black or grey, so that it will always be of a quite different colour from the inside of the sheaf, but the seed being outwards, can take

take no damage, but will ripen or dry the faster for it.

If the bunch-rate flax get a mixed colour, it is for want of spreading even and clear of lumps after the pullers; the same evil the dew-rate is subject to, if not properly spread, but it may happen to white flax two or three ways.

First, when it is pulled, if it stand too long to dry before it is put into the pit.

Secondly, if it be not well and close covered in the pit with sods, and duly trod.

Thirdly, if it be not spread even and clear of lumps in the time of grafting.

All these cautions, a farmer ought to be armed with, if he means to bring this valuable branch to its full perfection.

C H A P. III.

The pulling, watering, and management of seed-flax, in imitation of white flax.

THE Seed-flax must stand about three weeks longer than the white. It will shew itself to be ripe by the leaves fading and falling off, and the boles turning brown; but beware of letting it stand till the seed in the bole turns brown; for if you do, the seed will be nothing better, and the flax a great deal worse: It is a great mistake to let the seed flax be over ripe.

Observe the same directions in pulling the seed-flax as for white, (only make the sheaves a little larger) set them up in a propping manner, three leaning to each other. In three or four days after, if the weather permits, make them into small field-stacks, no larger

larger than you can reach without getting upon them.

Make them like corn stacks, only with this difference, that the seed-ends must be outwards, in order to dry the sooner, and keep the stalks from being weather beaten.

Thus let them stand about a week and then make them over again, by which means the top of the stack will become the bottom. Lay a little weeds, or the under-growth of flax on the top of the stack in order to make it cast the rain, and keep the upper sheaves from the sun and weather.

A few sheaves turned brown or grey would spoil a great parcel, in the beauty of its colour; for let the colour be of what sort it will, it ought to be even, or else it wil not bleach even when in cloth; which is impossible to accomplish without great care before it goes into the water. Let the stack stand,

stand, after turning, about ten days, after which take it into the barn, and ripple the seed off with rippling combs, for that purpose. (See the cut.)

Being thus rippled, tye it up in small sheaves, and water it in the same manner as directed for white flax; also observe the same directions to know when it is rightly rated and grafted; in short, treat it in every case as directed for white flax.

As to the seed, it may lye in the chaff or boles all winter, 'till it is wanted in spring, at which time riddle it first through a wide riddle, in order to take out all the long straws, pulse, &c.

This done, take it to the mill and shell it as you would oats. This is a ready way of taking the seed out without waste, and, on the shelling it may be winnowed at the mill without the trouble of taking the dirt back.

I shall

I shall spare myself the trouble of giving any directions about winnowing, as most people are perfect in that art; as it is winnowed in the same manner as corn, saving only as to the sieves, which must be suited to the size of the seed.

And now gentle reader, please to accompany me, once more, to the field of pulling, and I will shew you another and a more general way of raising seed-flax, which is in imitation of black or blo Dutch; but in truth, I have seen and reared better and higher priced by the following management, than ever I saw come from Holland.

Observe that seed flax of all sorts must stand till it comes to the same degree of ripeness before it is pulled.



C H A P. IV.

Directions for the management of black or bunch-rate flax, in imitation of blue or black Dutch, and to save the seed in perfection.

WHEN you begin to pull the bunch-rate flax, arrange your pullers all in a row, at one side of the field, let every puller take about two yards broad, and lead on at about the same distance before one another.

Spread the flax after them thin and even, with the tops all one way, as white flax is spread on the grass when it comes out of the pit. Take care that the first puller lays his row straight, that it may be a guide to all the rest.

As one crooked row will disorder the whole field, and give double trouble both in turning and gathering it up; when pulled, and thus spread, let

let it lye till it gets a grey colour, which will be in three or four days, particularly, if there be heavy dews or rainy weather; but if not, it will take a longer time.

Turn it with turning-rods, as directed for white flax, that both sides may get a grey colour alike; by this means the seed will be pretty rash, therefore handle it gently that the boles do not shake off in gathering and binding, in which there will be the less danger, if you make large sheaves, as there will be less outsides.

Hereupon take it home and beat out the seed with beaters, for that purpose made of a piece of wood, twelve inches long, two thick, and six broad, and in this fix a handle slopeing wise, (see the cut.)

When you begin to beat out the seed, spread two rows of flax on the barn floor, with the seed ends to meet.

Then

Then beat out the seed with your beaters; but observe that you let the beater fall through on the flax, or else it will break the handle. There is some art required in giving a good stroke with the beater.

Tye the sheaves up with two bands, one at each end, and lay one half of the sheaf with the tops to the roots of the other half. Make the sheaves as large as a middle-sized wheat sheaf.

Being thus prepared, take it to the water, but this must not be funk with sods, or any other weight, but must swim upon the surface of the water, lying in rows, each sheaf close to another.

It must be turned every second day, which is easily done with a long fork, having about two inches of the points of the grains bent, in the nature of a muck-drag.

For its being well watered, observe the directions, as for white flax, with this addition only, that it will sink under the surface of the water when it is about enough rated, but not to the bottom of the pit. If it should be left till it sinks to the bottom, there is great danger of its being over done, or in plain terms rotten.

These are known facts amongst the flax farmers, but for what reason nature thus varies her operations, few trouble their heads to philosophize about the matter.

Were a curious person however, to attend the flax throughout the process of its rating, he might infer a great deal from its rising and falling in the pit; its losing and regaining its spirits, &c. &c.

Being duly watered, take it out and let it lie on the pit's side all night to

drip; then take it to the ground intended to dry it on; but it must not be spread flat, but set up almost like a sugar-loaf, the sheaves being in two parts, that is, the heads each way it will easily part in the middle, one half of which is enough for a rickle (so called) take it by the top and spread it round you, giving the root end a good splay, so that the wind will not easily throw it down, press the tops close together, so that as I have observed, it may resemble a sugar-loaf, standing so thin and open, that it will soon be dry; but however it will be the better to get a little rain before it is bound up, in order to wash the dirt off, &c.

The boles of this flax will be well broke by the beater as above directed, so that there will be no more to do than to winnow them, and there is no doubt of the seed being very good.

I have

I have known such bunch-rate flax to sell, in the rough, in Snaith-market, Yorkshire, at sixty-four shillings the hundred weight, and the seed from it, as good as any foreign seed.

**C H A P.**

C H A P. V.

*Directions how to manage dew-rate flax,
with or without the seed on.*

SOME set up their dew-rate flax in stooks, after pulling, to dry like corn, letting it stand perhaps three weeks, or a month.

This is a bad way; for standing in the stook so long, in order to dry the seed, tenderes the out-sides of the sheaves to such a degree, that they will not take so much rating as the inside, and will therefore be undoubtedly rotten before the inside is enough rated.

The best way is to spread it after the pullers, as directed for bunch-rate flax in the following manner, viz.

You must arrange your pullers at one side of the field, and let them spread the

the flax thin and even after them, with the tops all one way; if there be rain, the upper part will be well rated in five or six days, but in this case circumstances alters greatly, according to the various sorts of weather that may happen; therefore a farmer must be circumspect, and rub a few stalks at the upper part of the row, between his finger and thumb; and if they break and part freely from the skin or bast, he may then turn it with turning rods, and let it lie till he finds both sides to be rated and coloured alike. But if the flax be not spread upon the grass, very even and thin, but lie thick and in lumps, the inside will be green or yellow, and not in any degree equally rated to the outside, therefore it will be irrecoverably spoiled.

If the flax be not enough rated by the above method, or that you dare not trust it on the grass, so to be, (for fear of shedding the seed) then about the first of March, when the seed is off, spread it

it on the grass again, thin and even, and manage it the same way in grafting as white flax ; also observe the same tokens for its being well grafted, &c.

I have had flax well dew-rated, with the seed on, by spreading it after the pullers, as above, without any more trouble ; so that it breaked and swingled, and in short answered well every way ; but I never knew it done by any one but myself, and indeed, I never ordered any thus but one year ; in which, I had twenty-seven acres rated in the above manner.

It is necessary it should be round bunned, or coarse stalked flax ; and it requires a good look out, lest it shed the seed, by lying too long on the grass, or getting too much slavery under the weather.

When it is enough rated, take it home for working. It must be breaked and swingled as other flax.

The

The seed of this dew-rate flax is undoubtedly very good, and there is also less trouble attends the flax; but it is not so good in quality, neither do I think it yields so well. Indeed it is scarce ever done, but in a country that has not the conveniency of water.

**C H A P.**

CHAP. VI.

*Directions for breaking and swingling
flax, as in England, without fire.*

AS I have reminded my reader to take great care that his tops of flax be kept all one way, and the roots even, it's to be hoped that my former caution may prove sufficient, if not, it will occasion the more labour to the breaker, for it must be very even at the roots, before it be put in the breakers, or he can never make good work.

Wherefore, before he begins to break, let him take a sheaf, and slacken the band, but not loose it quite; then chop the root end on the ground; this done, pull all the loose rubbish it has gather'd from it; then take a little more than he can hold in one hand, and again jump it even at the root; take hold as near the top as possible, so as to hold it fast; then take a little

of

of the top from under the hand, bring it round the flax, and lap it round his thumb, by which he may hold it faster than if he had no more than his fingers could meet about; bend it two or three times backwards and forwards, so as to make it supple close to the hand; put it into the breaks, keep it thin spread in them, and as he works it, turn it often.

When the root is breaked, let him stroak it smooth, and pull the end; then break the top end, and the root-end again.

Being thus breaked, let him begin to swingle, holding it in the nick of the swingle-stock, with the left hand, and the swingle hand in the right; let him always hit the top of the stock above the nick, and it will glance down past the nick with full force through the flax.

When the root-end is swingled once over, hackle the top-end with the foot-hackle; to take out the rough tow and shoves which are hard to fetch out effectually with the swingle hand alone.

When the flax is good and rightly watered, it is easily worked, three times going over with the swingle hand will be sufficient to clean it from shoves.

If it be rightly swingled by a good workman, it will be quite clear of tow, to all appearance, before it goes into the hackle; so that it will be easy to count every harle in it, and the root will be as even as a pound of candles, and look as glossy, after the swingle hand, as it does after the hackle.

When we see a parcel of flax dress'd to this perfection, in Ireland, that will fetch, in the rough, from sixty-eight, to seventy shillings per hundred, we may venture

venture to pronounce that the most essential part of this noble branch, which ought to be the first introduced, has at last found its way into this kingdom.

But though I have given rules, as above, for a swingler, I am certain it's impossible to make a workman without ocular demonstration.

It is true, if a learner had an old workman to look at, two or three days, these directions would be of great use to facilitate his instructions.

Whatever you do, beware not to dry any flax with the fire, or even the sun, after it gets a sweat in the mow; for if you do, it will certainly reduce both the value and weight, making it light, fussy, and brittle.

I have often been told by the Irish, that they thought it impossible to dress flax

flax without fire; and on the other hand, when I have told the English that the Irish dried their flax with fire, they wondered as much, thinking them very ignorant for so doing.



C H A P.

C H A P. VII.

Observations on flax-seed, of its being worn out or tired, and how to refresh it, &c. &c.

Flax-seed is a very deceitful grain; for, though it may look well to the eye, yet it may not be worth a penny a cart-load, for sowing. Indeed, if it be of a good quality, it's no worse for looking well, by being clean and bright, &c.

The English flax-farmers are as much on their honour in supporting the character of their seed, as that of their horses; nay more so; for it's impossible for a person to sell a parcel of seed amongst them, at any price, if he be not known to be in a good breed (as they call it:) so that he must be well known to be a man of a good character, and his seed well vouched.

It

It is incredible to tell the difference there is in flax-seed; which I have seen proved more than once: an instance or two I beg leave to mention, viz.

A farmer of my acquaintance lived about twenty miles from the flax country, and tho' no farther off, yet he was quite a stranger to the branch; but as he was a pushing, scheming man, he made a journey over to the Isle of Axy in Lincolnshire, the most famous part in all England for flax. He stayed a few days among the farmers; and, as he was a smart, sensible man, without doubt, returned as well instructed as the nature of such a journey would admit.

Upon which he ploughed up twenty acres of good old lay-land, and sowed it with flax-seed; which he bought at an oil-mill, and which he said, looked very well, being large, bright, and clean, and grew very vigorously 'till it was about fourteen inches long; whereupon

upon it made a full stop, began to blossom, and never got to be half a yard in length. He was greatly surprised at such a disappointment; and, as the land was good, could not unriddle the mystery.

However, he was not discouraged beyond hope; as he remembered that the flax-farmers, (when he was in the flax-country) sold their seed for four pounds per quarter; so that if he made no use of the flax, the seed, as he apprehended, would pay him better than any thing he could have sowed his land with.

Upon this presumption, he took a sample, and went to sell it at the time of year; but not a grain could he dispose of, at any price, though the farmers were selling, one to another, at four pounds a quarter.

He wrote me a pitiful letter complaining of the flax-farmers, believing
they

they combined against him, not to buy his seed, in order to deter him from sowing any more.

Hereupon I advised him to employ a person to sell it for him by commission, and recommended a noted flax-buyer to him for that purpose.

He took my advice, by which means he sold his seed at four pounds per quarter. However, it was a bad job for all sides, the buyers lost their crop, and the sellers their credit.

The flax was so short that it could not be wrought; and as to him who sold the seed by commission, he has told me since, that his credit was hurt so much, by selling the said parcel of bad seed, that he never could sell a peck since, in the commission way.

This shews how cautious a farmer ought to be in the choice of his seed. Amongst many instances of this sort, I shall

I shall only mention one more, that happened to myself.

About three years ago, I happened to be one bushel short in finishing about sixty acres I sowed that year, with good seed of my own rearing. The field I finished in, contained twelve acres, and was very good land; wherefore I thought it a pity to let any of the land lie idle.

Hereupon I bought some seed at a venture, which looked well, and grew vigorous as the rest of the field, till it was near half a yard long; and then it made a full stop; blossomed, seeded, and grew no more, tho' all the rest of the field, was from a yard, to a yard and quarter long.

A more demonstrable proof I never saw; for it was put into a sack wherein the good seed had been; and as some grains of the good seed stuck to the sack

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and mixed, it was easy to gather every stalk of flax that grew from the good seed, being above twice the length of the bad species.

Moreover, the branches of the good seed were long, and one aspiring above another, having a leader above all the rest.

But it is not so with the bad sort, of which the branches are all of a height, so that the top will be as even as a cliped hedge. When flax comes to have such a top, and abates so much in heighth, it is a sure sign that the seed is tired, bad, and worn out.

Perhaps my reader would be glad to know what I mean by seed being tired, as also how to help tired seed, &c. which is as follows, viz.

First, let us consider that it is from the hot climates that this seed comes, namely from North America and Riga.

It

It is true that the heat in the latter, only continues about three months; but that is the season in which the flax grows, during which time it is exceeding warm.

The heat in America holds much longer; and it is well known, that plant or vegetable, which produces a fluid substance, will ripen, in fruit and seed, to a greater perfection there, than it will in our colder climates, the skin being thin, kind nature, as it were, crams her receptacles full of rich juices suited to each plant, &c.

This, in flax-seed is demonstrably proved by the oil-mills, as they find a considerable larger produce of oil from foreign new seed, than from seed that has been repeatedly sown for many years in England, tho' the latter shall look brighter, larger, and plumper than the former.

The

The seed therefore certainly degenerates by not producing so much oil in our cold climates, but instead of oil a thick skin, and within it a gross pulpy substance; and the longer it is sown here, the more it runs to this harsh unkind matter.

Now this oil is the very life and spirit of the flax; therefore, as this abates in quantity, the flax abates in its length and value.

Without doubt, were a parcel of seed, that is quite run tired in England, taken to those hot countries, and sown, it would in time regain its former good quality.

But, let not my brother farmers be deterred from saving seed in these colder climates under fear of its degenerating, for be assured it may be sown four or five years before the degeneracy can be perceived, and then but in a small degree; so that it will last fifteen or twenty years before it need be changed;

ed; but I only mention these particulars, in order to lead the flax grower thoroughly into this branch.

The farmers in England have a way of resting their seed (as they call it) which is done by barreling it up, and letting it stand a year or two without sowing; the longer it stands the better. This was discovered by chance.

A farmer happened to spare some seed after sowing, he let it stand two years; and, when he came to sow it at the end of that term among some seed of the same sort, but which had been kept sowing each year, it topped it in length eight inches. This accidental experiment has brought on a general practice, as it is found to refresh the seed in a surprizing manner.

There is no accounting for this amendment, otherwise than by supposing that the pulp and skin meliorates by the evaporation

poration of the watry particles, and by the cruder parts being mellowed and melted down, (as it were) into the body of the oil.

Thus any sort of seed of an oily nature, such as rape-mustard, or cole-seed, will produce the more oil, the older it is; and it is oil (as I said before) which is the very essence of flax.

A farther caution is necessary, that your seed be clear from button-seed, which is a very pernicious weed, and a great enemy to flax: for where this gets footing, the flax-seed must be condemned for oil, be it of ever so good a quality, so fatal is this weed to it.

The seed of this weed is white and very small, not as large as the smallest grain of mustard-seed; but there are as many joined together in a bunch as make a head of about the size and likeness of a waist-coat button, from whence it takes its name of button-seed.

It

It grows on a small stalk which twists round the flax, as ivy about a tree, so that there is no getting quit of it either by weeding or swingling, as it will not part the flax along with the shove, and the increase is so very great, that if there be only a few stalks in an acre of flax, this year, the next it may destroy the whole crop.

There is another bad seed which is by some called wild-willow, and by others corn-bind. This is not much unlike hemp-seed, only not quite so large; it also twists round the flax as ivy round a tree, which makes it impossible to be weeded out; however, as the seed is large, it will stay in a sieve that will let flax-seed through, by which means it may be kept clear with care, and tho' it is not so multiplying a seed as button-seed, yet it is a great enemy to flax, and ought to be guarded against.

There

There are several sorts of flax-seed which might be explained, were it worth while to go to the nicety of matters, but as I have no intention to swell this work with matters of speculation, or with any thing that is not of immediate consequence to the farmers, I shall only mention two principal seeds from whence we derive our growth; namely, that of America, and that of Riga.

The former is a bright bay seed, and produces a fine small flax; but the Riga is mostly a dark bay, broad flat seed; it produces a gross tall flax, which I am apt to think is most suitable for this degenerating climate, for it is easily cured and made finer by sowing it somewhat thicker on the ground.

I got the best breed of seed I ever had from Memmill in Riga. This Riga-seed will last longer good than American-seed, in England or Ireland; but it is not so beautiful to the eye, neither

ther is it of so high a price in Dublin as American seed.

There is a sort of seed which comes from France, when sown here, produces a fine flax, but so puney, short, and small, that it is scarce worth reaping. I once sowed some (by way of trial,) but lost my crop. I have also seen others suffer by it, therefore would have my reader to guard against it.



C H A P. VIII.

*Directions how to make French sieves,
and their use.*

FRENCH sieves, so called, as they came from French Flanders. My father was the first who introduced them into England, about sixty years ago.

The rim is about three feet diameter, and three inches deep; the bottom is made of parchment; two are made use of, and called a set; one of them goes under the name of riddle, and the other sieve.

The riddle is punched with a hole thus, — it lets through the flax-seed being flat, and any round or square seeds stay in the riddle.

The sieve is punched with a round hole thus, O which lets through the small

small round seeds, such as rape, mustard, ketlock, or button-seed, but the flax-seed stays in the sieve. These holes must be punched to an exact size, or they are useless.

There is a particular art in dressing with these sieves, which I shall spare myself the trouble of explaining, as it is impossible to be executed without seeing it put in practice; and even then it is not easily learned.

There is not above six pair of these sieves in England, and about as many men who are capable of dressing with them. It is a calling of itself; and, at the time of sowing, they are very busily employed. A farmer pays about two shillings per quarter for to have his seed dressed in them. None requires to be dressed in this manner, save such as have run to weeds; and, in this case, though it is difficult to get the right **knack** of dressing or turning the sieves, yet

yet the stirring of them any way, will clear a great deal of dirt, and seeds out.

The expence of a set of these sieves, at a moderate computation, is three pounds; and one set, and two men will clean all the flax-seed for ten or fifteen miles round in a flax country.



C H A P.

CHAP. IX.

On Winter-flax.

WE may truly call that winter-flax which is sown in Autumn, to stand the Winter, it being about five months longer in the ground than common.

In my travels through Ireland, I have met with several persons that told me, they had made trial of this method, and some speaks in favour of it, but there are many more, who condemn it.

I was often asked the reason why I took no notice of it in my first Edition? My answer was, that I thought it of no utility to the public, as I had tried it long ago, and found it did not answer; therefore I omitted taking any notice of it for that reason. The particulars of the trials I made are as follow, viz. Observing where the flax seed had been

been accidentally scattered in Autumn, and that it grew, or kept green all winter; I concluded that this method might be improved upon; therefore, I was determined to be convinced by a fair trial, and for that reason, in October 1759, sowed one acre, in the middle of a twelve acre field, tilled well, and managed it in every other degree as it ought to be.

About the middle of March following, I sowed the remainder of the said field with the same sort of seed. The winter flax got to be about five inches long before the severity of the winter came on; after which, it grew no more, but from the first frost, changed its healthy dark green, to that of a sickly pale green, and at spring never regained its former healthy complexion.

After the spring-flax came up to be about five inches long, I set sticks, as marks to both sorts.

The

The spring-flax grew above one Inch in twenty-four hours. But the winter-flax grew half an inch only.

The winter-flax was ready to pull three weeks before the spring-flax; and at pulling was scarcely thirty inches long: The spring flax was about a yard and seven inches, so that it was longer than the former by thirteen inches, or thereabouts. The winter flax branched or spread greatly into top, so consequently produced more feed, which indeed, by the by, is no recommendation.

The year following I made another small trial, which was attended with much the same consequences; therefore, I was thoroughly convinced that winter flax is not an advantageous crop.

The failure in winter-flax, may be accounted for in the following few words, viz.

It's to be considered, that flax in its nature, is trusting to one leader, the top of which is exceeding tender, info-much that if any thing wound it (ever so little) it will grow no more, but strike or spread out into side-branches, which is of no other use; than to bear the seed, being of a poor towey quality, therefore comes off in dressing as such.

If a flie, or what is commonly called a flax-flea, happen to bite or wound the leader, or top of a stalk of flax, when at five or six inches long, it stagnates its growth, and makes it short, coarse and stunty, much resembling a young fir-tree that has lost its leader. I found the frost had pinched the tender leader of my winter-flax, which made it liable to the said ill consequences.

Another thing is, that flax-land must be harrow'd very fine, at the time of sowing; therefore much wet weather in winter makes it cement, or bake

bake together, which helps to bind the flax in the ground and retard its growth. Any land is certainly better and fitter for a crop, that, after a severe winter, is opened, broke up or pulverized in spring, as it sweetens and proves of great utility thereto.



C H A P. X.

On flax amongst potatoes.

IF flax-feed be sown among potatoes set with the plough, (as directed in this treatise,) there is no doubt but it will answer very well, as the potatoes is set thin and in drills, having about eighteen inches between each drill, and about ten inches between each potatoe; by this the tops of the potatoes and the flax does not incommode or croud each other, having room enough for each to flourish.

The potatoes set thus, will spread under ground and produce a far better crop than when planted thick, as the tops by this warm situation, draws one another up weak and tender; and nature being so profuse in throwing her bounty upwards to support so much useless top, robs herself of the salts she ought to reserve to enlarge the potatoes.

In

In the year 1765, I receiv'd the highest premium in Ireland, for saving the most and best flax-seed amongst potatoes. I saved 48 pecks of good seed, and only the land was subject to weeds, and had little pains bestowed to clean it, or I might have had as much more; the potatoes was very good also. I set them with the plough as directed in this treatise.

As soon as the potatoes was planted, I sowed the seed the broadcast way, at the rate of eight quarts to the acre, and in order to try experience, I raked and rolled some, but the most part of it, I did nothing to after sowing, but left it uncovered, which proved the best crop; and tho' it may seem odd to my reader, yet it may be easily accounted for.

It is to be observed, that flax-seed being of an oily nature, is of a great attraction, insomuch, that if a field be sown, and not covered by harrowing or otherwise, the second day after sowing, it will be impossible to find a single grain,

grain, particularly if there fall in the mean time, either dew or rain, or if it be sown in green mold. Each grain gathers the fine particles of earth about it, being candid (as it were) with mold, and much resembles a comfit, so that after the second day (as I observed) one loses it insensibly, and sees no more of it till it rises at top of the plant, which will be in about five days after it is sown. The first time I found this out, I was greatly alarmed, as follows, viz.

In 1753, I had a large field ready to sow on a saturday, and having a call from home, I sent a man to sow the field, and ordered it to be harrowed once in a place when sown. At my coming home I was told the field was sown, but about an acre of it left uncovered. On Monday I sent to finish the field, but the servant returned in a great hurry, telling me that the birds had picked up all the seed; upon this, I as well as the rest of the family, and some of my

neigh-

neighbours, went to see if it was necessary to sow it over again.

We sought a considerable time, and could not find a single grain; therefore had concluded to sow it over again; but by chance, I found a grain by rubbing the mold between my fingers; this learned me how to seek for it, after which I found several grains candied with a coat of mold, and very slimy.

In order to see the result of this, I left it as it was, without harrowing, and I never had a finer crop; I believe every grain grew, and all (started as it were) fairly together, and not one grain buried deeper than another; which is not the case when harrowed, for when it happens that the seed fall to the bottom of a drill or seam, made by the pins, (which may be the case with more than half of the seed) it will be covered perhaps, two inches, or more deep, therefore longer in coming up through

through so much mold by several days, than that which lies on the surface; therefore it may be justly called a second growth; and a second growth in any crop is bad, but worse in flax than any other; as those plants which first comes up is generally the strongest and maintains their vigour, by being more open, and exposed to fresh air; but the second or under-growth, is partly debarred from this advantage, being shaded or kept under by their over bearing predominant enemies, therefore rendered small and sickly. I have proved this so often, that I believe I shall never cover a grain of flax-seed more.

Those that would raise flax-seed amongst trenched potatoes with success, must adhere to the following rules, viz.

1. Never sow flax-seed on land that is subject to red-worms.

2. Do

2. Do not plant your potatoes nearer than a foot of each other.

3. Never dig your trenches deep to throw up bad mold, but make them wide and shallow, except the under stratum be of a good lome, or black rich hafle earth; but if the under stratum be of a fox-sand, a red or blue clay, or of a hungry brown, or red cankered, poisonous earth, commonly in England, called ramill, a man may as well throw his seed into the sea as on such land; and I believe three-fourths of Ireland is subject to such a bottom. Indeed the lands of Ireland is very changeable, it is not uncommon to see two or three different sorts in one field.

On my travels through Ireland, I met with several complaints, that flax missed, which had been sown amongst potatoes, and has often been shewn the ground, which was always attended with

with consequences as above; therefore it behoves every person, to consider the land he has to work in, or he can never be successful in his enterprises; but whether the land be good or bad, or whether he means to sow flax among his potatoes or not, it is a great mistake to set his potatoes thick, as by that the land is spent by supporting the luxuriant tops; whereas, if they stood thin, there would be a free circulation for air, and the potatoes would spread the more under ground. This is evident, even to a weak understanding.



A T A B L E of expence and profit
of an acre of white flax, were it
raised in Ireland, after the English
method, as directed in Chap. I.

One Irish acre of flax at 7 yards to the
perch, will produce 75 stone, at 8s. per
stone - - - - - £. 30 0 0

The expence of said acre is as follows:

To ploughing, harrowing, and sowing,	0 10 0
To 3 bushels of flax-seed, at 10s. per	1 10 0
To rolling said acre - - - - -	0 1 0
To pulling - - - - -	0 8 0
To drawing to the water, at a reasonable distance, and sodding - - - - -	0 5 0
To treading in the pit - - - - -	0 1 0
To taking it out, and spreading on the grass	0 5 0
To turning it on the grass - - - - -	0 0 6
To gathering up and drawing home -	0 5 0
To breaking and swingling without fire the above 75 stone, at 1s. 2d. per stone	4 7 6
To land-rent, suppose in or about the centre of Ireland, - - - - -	1 5 0
 Total expence	 8 18 0
 Clear profit.	 £. 21 2 0

Note, I have only charged the said 75 stone at 8s.
per stone, but Mr. *Patt Ewing, jun.* in *Dublin*, has
a large quantity of English flax shipped at *Hull* in
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Yorkshire, for *Dublin*, the beginning of Nov. 1765, which none of it cost any less than 8s. 6d. per stone, and by the time it arrives in *Dublin*, will cost at least 10s. per stone, which is 4l. a hundred weight in the rough. Is not this a demonstrable proof, that the *English* has got a method of raising flax superior to all the world, when the best flax that ever was imported to *Dublin* never reached that price, within 16s. a hundred weight.

A TABLE for CHAP. III.

The profit and expence on an acre of flax, raised as directed in the above Chapter.

To 70 stone of flax at 7s. 6d. per stone	25	5	0
To 18 Bushels of seed, at 10s. per Bushel	9	0	0
			£. 34. 5 0

Expence attending said acre if ordered as directed in said Chap. 3.

To plowing, harrowing and sowing	0	10	0
To three Bushels of seed at 10s. per bushel	1	10	0
To tolling	—	—	0 1 0
To pulling	—	—	0 8 0
To stacking, and turn stacking	—	—	0 2 0
To drawing home, suppose a mile	—	—	0 2 0
To ripling	—	—	0 10 0
			£. 3 3 0

TABLE for Chap. III. 83

Brought over	3 3 0
To thrashing, for shelling the seed at a mill, and winnowing	0 4 0
To drawing the flax to the pit, suppose a mile and sodding	0 5 0
To treading in the pit	0 1 0
To taking out of the pit, and spreading	0 1 5 0
To turning it on the grass	0 0 6
To gathering up and leading home	0 5 0
To breaking and scutching without fire, 70 stone, at 1s 4d. per stone	4 13 4
To rent for land	1 5 0
Total expence	10 11 10
Neat profit £. 24 3 2	

A TABLE for CHAP. IV.

To 65 stone of flax, at 7s. per stone	22 15 0
To 20 bushels of flax-seed, at 10s. per	10 0 0
<hr/>	
£. 32 15 0	

Expence attending said acre of flax.

To ploughing, harrowing, and sowing,	0 10 0
To 3 bushels of seed at 10s. per	1 10 0
To rolling	0 1 0
To pulling	0 8 0
<hr/>	
£. 2 9 0	

TABLE for Chap. IV.

Brought over	—	2	9	0	
To turning when spread on the flax-stubble	—	0	0	6	
To gathering, bringing and drawing home	—	0	5	0	
To beating out the 20 bushels of seed	—	0	6	0	
To drawing to the water, suppose a mile	—	0	3	0	
To turning it in the pit	—	—	0	1	0
To taking it out and rickling	—	—	0	2	0
To binding and drawing home	—	—	0	4	0
To breaking and swingling 65 stone, at 1s.	—	—	—	—	
4d per stone, without fire	—	4	6	8	
To land rent	—	1	5	0	
 Total expence	—	9	2	2	
Total produce	—	32	15	0	
 Clear profit	—	23	12	10	

VI. TABLE for CHAP. V.

The expence and profit of one acre of flax, raised by the method laid down in the above Chapter.

To 55 stone of flax at 6s. per stone	16	10	0
To 20 bushels of flax seed at 10s. per	10	0	0
Total produce	—	£.	26 10 0

TABLE for Chap. V. 85

The expence attending the said acre of flax.

	IN GULD
To plowing harrowing and sowing	0 10 0
To rolling — — —	0 1 0
To 3 Bushells of seed, at 10s. per Bushel	1 10 0
To pulling — — —	0 8 0
To turning when on the flax-stubble	0 0 6
To gathering, binding, and leading home	0 5 0
To beating out, and winnowing	0 6 0
To leading and spreading it on the grafts	0 3 0
To turning it on the grafts — —	0 0 6
To gathering, binding and leading home	0 5 0
To breaking and swingling without fire, the 55 stone, at 1s. 4d. per stone	3 13 4
To land rent — — —	1 5 0
 Total Expence	<hr/> 8 7 4
Total produce	26 10 0
 Neat Profit	<hr/> 18 2 8

CHAP.

C H A P. XI.

Remarks on the foregoing tables.

I have been very exact in calculating the foregoing tables; therefore my reader may rely on what I have set forth, as I cannot be mistaken, knowing every part of it so well; it is nothing to me, to calculate, or estimate tables of this sort, in any part of the two Kingdoms as I have had so many repeated trials, and am so well acquainted with the value of land, labour and commodities, in almost every part therein.

I have fixed the tables, supposing the flax to be all of an equal goodness, as it would be impossible for me to estimate for different crops (a farmer may chance to have) without seeing them: But, he seeing the tables and different methods of management, must be the best judge, which management

nagement or table will answer best for the crop he sees himself possessed of. But in order to assist him as far as I am able, by a theoretical lesson, let him observe the following rules.

1. If your flax be very long and fine, and either does, or is likely to lodge if rain come; if your markets or situation be such, as to have a call for fine flax, then pull it for white flax, and follow the direction for Chap. 1.
2. If your crop be a stout fair-standing one, and a degree coarser than the above; if your seed be of a good kind, so that you would be glad to save it, and that you have plenty of labourers to attend at the rippling of it, which indeed is a great clog upon this sort of flax, at this busy season of the year. If your situation, manufactories or markets, be such as have a call for this second rate-flax, then manage this crop as directed in Chap. 3.

3. If your flax be thin or short, or inclined to a large bushy top, which will produce a great deal of seed, (tho' indeed this seed should be sold for oil, as it is not good in nature;) if you be scarce of hands at this busy time of the year. Also if you be scarce, or would not be at the labour of making pits, but have drains, (which if not running water will do very well to swim this flax in;) if your situation, manufacturers, or markets be such as to have a call for this third rate flax, then manage it as directed in Chap. 4.

4. If your crop of flax be thick, or coarse stalked, (commonly in England called round or coarse bunned;) if your situation be distant from water: also if your situation for manufactory or markets be such as to have a call for coarse flax, so that your regard be more for the seed than flax, then manage it as in Chap. 5.

My reader may have one eye upon his crop, and the other upon the foregoing

Remarks on the foregoing tables. 89
going hints, therefore may easily determine which to pursue.

But tho' it is no more than necessary to verse my reader in every method, yet the first and fourth chapters is what I would chiefly recommend, being the most profitable and least subject to miscarriages, badness of weather, or hurry of other business, &c. as also the lands and manufactures of Ireland, are so circumstanced, as not to fail answering for one, if not for both of these crops, almost to every farmer; as there is in most parts of Ireland, a call for both coarse and fine flax, and there is few fields but what has two or more sorts of soil or earth in them; perhaps one side of a field may be in a hollow or bottom, which is generally the deepest and richest soil, therefore will produce a finer and longer flax, which is most apt to lodge. The hilly part of the field may be gravelly or sandy, which will produce a shorter flax; so between the two, the farmer may suit himself

with both sort of flax and seed too, which will divide his crop to be managed in two seasons, and will prevent hurry, so that he may get easier through it.

Observe, that coarse or thick stalked flax, will take a shorter time in watering or grassing; than fine small stalked, therefore ought to be watered in seperate pits: The former is generally thiner skinned, therefore not so good as the latter smaller sort. Flax will not bear to be sown thin for the above reason, except regard be had to seed alone. Three bushels of sound seed is the true complement for an Irish acre, at seven yards to the perch, and 160 perches to the acre. By the same rule, two bushels is sufficient for an English acre, at five yards and an half to the perch; the proportion is near alike.

C H A P. XII.

*Directions for sowing and managing
Hemp and the seed in perfection.*

THE season for sowing hemp is from the first of April to the middle of May. It requires a deep, rich soil, if summer fallow the better; though stubbles will do, provided they be fine, and well tilled by a winter fallow, and well manured. They must be ploughed early in autumn, and twice more in spring before sowing. After the last ploughing, sow the seed, and if the land be cloddy or rough, pulverize it alternately, with the harrow and roller.

Contrive to sow the most weedy ground you have with hemp-seed, as it will most effectually kill the weeds; and bring the ground into a good tilth for any sort of crop that may follow it;

it; but wheat is most commonly used, and has been found most successful.

There are two sorts of hemp that grow promiscuously through one another, namely, the summer and winter hemp, otherwise called male and female: the male or winter hemp bears the seed; the female or summer hemp bears none, and is ripe for pulling at least two months before the seed or male hemp.

About the latter end of July, the female hemp will be ready to pull, as will be evident from its turning a pale yellow, and the leaves withering and falling off; when at the same time the seed-hemp will be in its full vigour of growing, and the seed scarcely formed.

The female hemp being thus ready for pulling, go along the furrows and pick it out from the male; but, if you happen to break any stalks of the seed or male hemp, pull them up along with

with the female, as also any small feed-hemp that may happen to be in the furrows, &c.

After pulling, tye it in middling sheaves, with a band at each end; and for watering it, observe the same directions as for white flax. Rate and grass it also the same way, observing the same tokens in every case.

Some will save no seed, but pull all together, as female or summer hemp; this is the least trouble, but not the most profit, particularly if the hemp be a gross strong crop; but indeed if it be a small short crop, it may answer as well; for, when it is rightly managed in the white or female manner, it will fetch from four and six pence to five and six pence per stone; which is about two shillings a stone more than seed or peeled hemp will give. It must be breaked and swingled directly as flax, and without fire.

As

9. *The Yorkshire Farmer,*

As to the seed-hemp, let it stand until the seed be ripe, which is generally about the latter end of September; then pull it and tye it up with one band near the top, and set it up to dry.

When ready for threshing, make an even place for a threshing-floor in the field, and spread a winnow-sheet, on which it must be threshed. When threshed, tye it up with two bands, and water it, sink it with sods as white flax.

When enough rated, take it out of the water, set it up to dry, as directed for bunch-rate flax. See page 42.

Being thus set up, it will soon be dry to take home for peeling. This peeling is good winter work for women and children; if it be large hemp it will be got peeled for two-pence a stone, but if small, it will cost two-pence halfpenny. At times I have paid three

three-pence, but that was in a country where the people were strangers to such work; a child of ten or twelve years old, if active, will peel two stone a day, and the stalks are good fireing for them, as it is generally peeled at their own abodes.

The hemp-seed is winnowed as other grain; but it is often deceitful, as a great deal of it will be hollow within, and have no kernel, though it will look near as well to the eye as the best; therefore the buyer ought to inspect nicely into it, and to try its weight, which is the safest way to buy it by, tho' indeed not a common one.

An acre of hemp well managed, as above, will clear at a moderate computation, about twelve pounds sterling over and above all other charges. And there is very few farmers in Ireland or England, but what have some land fit for this crop, such as old gardens or land that is run to weeds, &c. provided
(as

(as I observed) it be well tilled and manured, but the weeds will be apt to grow the faster for the manure, if not effectually killed by summer and winter fallow.



C H A P. XIII.

Directions for ploughing, harrowing, sowing, and full management of Wheat, till brought to the baggard.

THERE are several ways of managing, and several sorts of lands suitable for this crop, such as summer and winter fallow, grass and stubble land; and summer fallow from clover-stubble after the crop of clover is off; potatoe and flax-land likewise, as directed under the title of those crops.

Observe one general direction as an invariable rule, viz. never to plough your land so deep, as to turn up the under stratum, except it be a deep rich lome, but if it be a hungry red clay, or fox-sand, &c. it will poison your land, breed weeds, swallow your dung, and create more labour, &c. &c. some land will not bear to be plowed

above three inches deep, others four; circumstances vary according to the depth of the soil, or what we call corn-earth: cut your land clean and free from baulks; also plough it of an equal depth, that there may be no troughs, (as it were) at the roots of the corn to perish it, &c. (See Remarks.)

Make your ridges eighteen or twenty feet broad, and take them up, or gather them two or three times at least, as less will not give the sole a proper sheed to let water run off.

At the first forming the ridges, harrow them across between every ploughing, in order to draw some of the mould into the furrows again, or else they will be stripped too bare of soil; alternately gathering and harrowing thus across, will give them an easy agreeable rise in the middle.

When the ridges are got to a proper heighth, they must be put down one time, and taken up or gathered another, by which they will be always kept in a right position or form, and the sole will be firm and have a proper sheed, so that it will be impossible for water to lye soaking at the roots of the corn to starve or chill it,

You must lay a little more manure than common on the furrows, as they will be stripped bare of soil or corn-earth, at the first forming the ridges, but what surplus of manure, you lay on the furrows, you may keep from the middle, as that will be the richest part.

As soon as the wheat is sown, grieve it across the ridges, in the lowest places, where the water is likely to stand, in order to give it a free passage when it comes. Make your grieses not above eight or ten inches broad, and spread the earth as you throw it up.

It

It is common in England, to throw the plough out at a gripe, and to leave about ten inches unploughed at each side, which will keep the sides firm, and the gripe in the same place; so that there will be no more trouble to clean them, than shoveling out what loose sods the harrow draws in, and in this case, two men will drain a large field in a day.

If you intend clover stubble for wheat, the clover must not be eaten in the spring, as it would drive the crop too late for mowing, which otherwise would be off in the beginning or middle of June, this being a sufficient time to fallow the land for wheat, as clover stubble is generally mellow, and easily tilled. The stubble must be ploughed in as soon as ever the clover is off, giving it no time to grow. Three ploughings is a sufficient fallow for this clover stubble.

If

If you intend natural grass-land, or corn stubble for a summer fallow, it is the judgment to plough it as soon as the busy wheat-seed time is over. Take up the ridges in this ploughing, and gripe them in order that they may lie dry all winter to meliorate with the frost, &c.

As soon as the busy seed time is over in spring, plough it again. There can be no set number of times ascertained for the fallow being ploughed, the oftner the better, and it is more enriched and sweetened by the sun, air and frost. (See Remarks.)

When you see the weeds or grass begin to grow, this is the time in which it must be ploughed; as one intent of fallow is to kill these pernicious enemies, by which means they become a species of manure, and as the roots rot and incorporate with the earth,

(See Remarks.)

earth, they are rendered of all manures, perhaps, the most excellent.

The general custom is, to fallow or plough four times, if the summer be dry, and the ground not very weedy; but in a wet summer, the grass, weeds, &c. grows faster than in a dry one, and consequently require to be often torn up, lest their roots strike too deep for the plough to turn up.

Your ground being well fallowed, the best season for sowing this crop is, from a fortnight before, to a fortnight after Michaelmas. (See Remarks.)

Eight stone of wheat is sufficient to sow on an Irish acre, tho' I know some of my brother farmers will laugh at this small quantity, but I assure them, I would rather sow three stone than eight, as by experience, I am thoroughly convinced that the throwing too much seed in the ground is a loss both as to seed and crop. (See Remarks.)

If

If you harrow your wheat in, the ridges must be raised to a proper height before the grain is sown, and your furrows made straight, take care not to harrow their edges down to fill them, but leave them as open as possible, that there may be a ready conveyance for water.

After the seed is sown, harrow it, but not too fine, it is the better to be a little rough with clods, for three reasons:

First, the clods keep the land open, not letting it run together, so much as fine land will do after heavy rains.

Secondly, these clods breaks the wind, and keeps the corn warm in its most tender state, being the time of its being weaned from the kernel.

Thirdly and lastly, these clods with every shower of rain, and after every frost, keeps melting or falling down about

about the roots of the corn, therefore keeps it landing (as it were) all winter; and at spring when it is rolled, the roller breaks and closes the remainder about the roots of the corn, and keeps out the scorching sun. For the foregoing reasons, it is better not to harrow your summer fallow, except your ground be over and above rough, and weedy, and then it must be done with moderation.

If you cover your wheat with the plough, take care not to bury it too deep, fix your plough to go smooth and even, and at most not above two inches deep, and four broad; gather your ridges close, and leave your furrows straight and open.

When thus sown, it must be well griped in order to lie as dry as possible. This done, all further trouble is over till April, at which time it must be rolled, and in the latter end of May weeded,

weeded, and nothing more till harvest.

It is a great mistake to reap wheat too green, as I have often seen it done in Ireland. Some people believe the flour is whiter for it (this I doubt) but if this be the case, it is no way equivalent for the loss there is in the substance. As corn-reaped green is always the product of a small, weesened, thick skin'd grain, for when the straw is cut before the grain is filled, nature is cut short in her journey, and obliged to take up her lodging in the straw, therefore the grain is robbed of those juices which alone can fill its skin, and keep its body plump. One grain of corn in this well fed state is worth numbers of the small sort; therefore let it harden well in the ear, and till the joints of the straw, turn from a green to a straw colour; the juices or sap being ascended from the joints of the straw will give you sure warning of the grain's being

ripe; for as long as the stem keeps green, the grain keeps feeding.

When this token is verified, reap it, and set it up in stooks, cover them with head sheaves at night, and in the morning take them off, in order to give the corn-ends the benefit of the sun to harden.

This may carry an appearance of expence and trouble along with it, but the benefit or advantage of getting the harvest, early in will by far exceed the cost; as two men will cover and uncover a great deal in a little time.

It must stand in stooks fourteen days before it is put into field-stacks, and to continue in field-stacks about three weeks before it is brought into the haggard.

As to threshing or winnowing, it is not worth while to say any thing about them

them here, further than to give the plan of a useful fan for winnowing all sorts of grain with. Observe the following Chapter on seed proper for the lands of Ireland.



C H A P.

C H A P. XIV.

On twelve different sorts of wheat.

FIRST, Red Lammas,
Second, White Lammas,
Third, Red bearded Wheat,
Fourth, Red Kentish Wheat,
Fifth, Long ear'd Wheat,
Sixth, Grey Pollard,
Seventh, Great bearded Wheat,
Eighth, Summer Wheat,
Ninth, Double ear'd Wheat,
Tenth, Yellow Lammas,
Eleventh, White ear'd Wheat,
Twelfth, Egg Wheat.

With a great many others not worth speaking of, being like some of these chiefly similar variations and not distinct species, neither are some of these worth a farmer's notice. The two first is suitable for any land in Ireland, and the farmers in England prefer them to any other, being, as they call them, the Kings of Wheat. Indeed, I take the white

white lammas to be the hardest of the two, and most suitable for cold land; but the red is the fairest flour and thinnest skin, and a good yelder.

The summer wheat is an early kind, for if it be sown in February, it will be as early as others, that is sown in Autumn therefore may be useful if the first should miss.

The next in value to lammas wheat, is the long eared wheat; this is a very great yelder, and a hardy kind, that will answere very well for the cold heavy lands of Ireland. I have had great crops of it, but it must be sown thin, as it stools much, and when thus thin sown, will produce an ear six or eight inches long. It is of the bearded kind, which annoys birds so that they cannot prey upon it with pleasure, therefore preserves itself; and I think it as good, if not preferable to any other for the North of Ireland, where the land is cold, strong, and coarse.

The

The egg wheat, will answer well in the south of Ireland, where the lands are light and sandy: it is a tender thin skinned grain, and produces a very fine flour.

The Kentish wheat is a good sort, and very near a-kin to red lammas: any of the other sorts of wheat may grow in Ireland, but not with that success. Were I to enlarge as much upon every different sort, I should swell this work beyond my first intention; therefore shall confine myself to what I have already said, being the most proper for this kingdom.



C H A P.

C H A P. XV.

Remarks and Illustrations on Wheat.

HUMAN mind was never more ripe for invention or improvement, than in the age we now live, insomuch that something new, (worth notice) is starting out from almost every art and science: but is there a subject more laudable or worthy of emulation than this before me. He who layeth himself open to conviction has a condescending, worthy, good mind. Again, he who labours with a good intention, and sends his works into the world, for the improvement thereof, may justly claim an impartial hearing.

What I next propose to shew, is the great advantage of fallows, as may appear by the table hereunto annexed. But it is not the common method of fallow I propose to treat of; as from that we could only expect the common

mon success. The method at present with the best sort of farmers, is to plow only four, or at most five times for a fallow; but did they know the rich qualities the air contains, and how many valuable, fertilizing, or enriching salts or sulphurs operate, work, and enrich the furrow every time it is turned up or exposed thereto, they certainly would stir themselves in good earnest to give their land a dozen ploughings at least.

When land lies long unstirred or unmolested, it runs or cements together in one close or consolidated body, till it turns sour the spirits, nitre, or sulphur it contains becomes dead, inactive, and useless. Whereas every time it is turned, there is an attraction from the air to the earth; these two bodies meeting together, divides the particles thereof by fermentation, and molifies it to a friendly substance: perhaps a farmer may think it very strange that salt-petre should be extracted from mud-

mud-walls, as is commonly done in the country wherein it is made.

But to bring the matter nearer home, and within the reach of his own understanding, let him take an onion before it begins to grow, and weigh it; after which lay it on a bright oak table in a room, and when it has grown (as it will when spring puts in) to four or five inches top, weigh it again, and he will find it considerably augmented in weight. It is quite clear, that what it advanced in weight was contracted from the air, as it could gain nothing from the oak table or any other substance.

Again, what is poorer than the clay or earth they build their clay-wall cabbins on (I don't mean sod-walls) as in Ireland? yet take the old clay-walls of such cabbins, and spread it on grass-land, and you will immediately see the good effects thereof. And it is quite clear that these enriching qual-

ties was extracted from the air, as it took none from the earth with it, which may be proved by a piece of fresh clay of the same sort spread on the grass near it.

Likewise a farmer may again prove the necessity there is for to stir or lay open the earth, to the air, by laying a clod or lump of marle or lime-stone gravel, or any thing that contains salts on a stone exposed to the air ; and he will find the air will open, to come at the spirit or salts it contains till it shivers the clod all to pieces ; a great many more proofs might be added, but hope the above will induce him often to open or turn up the surface of his acres, that they may be at work, feeding upon the air, while he is sleeping in his bed.

Now suppose a farmer have sixty acres (or so in proportion) of poor land on matter whether stubble or grass, and that he would be glad to turn it into tillage, himself being poor also ; to avoid the ex-

pence of manure, let him divide the sixty acres into two parts, thirty in each, let him provide four horses, two plows, and two plowmen, these makes two compleat teams at two horses in a plow, and one man to drive and hold each.

Let him begin to plow one of the divisions about Michaelmas, and let him keep said two teams constantly going, to plow this thirty acres, as often over as they can in twelve months; (it need not be harrow'd,) begin always the next time to plow where they began the first, by this method they will plow it over once every month in the year, and by going the regular round, there will be a month between every plowing; this ground being so loose and mellow, that without doubt, the two plows would plow the thirty acres in twenty days, therefore they would have the remainder of the month, for chance of frost or rain, or other unforeseen hindrances.

Being

Being thus tilled, there is not the least doubt but this land would bring as good a crop of wheat, as could grow, and better than if it had been manured ever so high; a crop of this sort without doubt, would produce ten barrels on each acre Irish measure, and as it would be sure to be clear from weeds, (and if not sown too thick) a full bold grain, I may state the price at twenty shillings a barrel in the following table.



A Table

A Table of expence and profit of sixty acres of wheat, managed, devided and fallowed as set forth in the remarks thereon.

EVERY farmer knows his own situation best, but I will suppose the land in a farming way, worth 20s. an acre, and as a crop of this wheat would have two years rent upon it, it would amount to	l.	s.	d.
	60	0	0
To fifteen barrels of seed-wheat, half a barrel to an acre at 20s. per acre	15	0	0
To reaping and binding at 6s. per acre	9	0	0
To stacking, drawing home and thatching, at 4s. per acre	6	0	0
To tythe, at 5s. per acre	7	10	0
To repairing the plow-irons	1	0	0
To eleven acres of land, to maintain four horses; five acres for grass, three for meadow, and three for oats	11	0	0
To mowing and making the hay, at 4s. per acre	0	12	0
To seed-oats for three acres	1	4	0
To plowing and sowing three acres with oats	1	10	0
To mowing, binding and carriage home	0	15	0
To two mens wages at 6d. per day thro' the year	27	12	0
 Total expence	101	2	
To 300 barrels of wheat, ten on each acre, and sold at 20s per barrel	300	0	
 Clear profit	£.158 17 0		

Note. The straw is worth the thrashing.

C H A P. XVI.

Remarks and Illustrations on the foregoing Table, and Agriculture in general.

THE estimation of the foregoing table is absolutely very moderate, and I verily believe the profit would be oftner more than less, as I have had myself, and has known others to have had ten barrels and upwards, on an English acre, which is one third less than an Irish one; therefore an Irish acre by the same rule, may produce fifteen barrels.

The whole body of husbandry (tells us with some sort of surprise) of the lands in Cheshire, producing twenty barrels of wheat on an acre, if the author means twenty barrels on an English acre, at five yards and a half to the perch, it would be a very extraordinary crop, but if he means so much on a Cheshire

Cheshire acre, it would be nothing uncommon ; for he should consider that, one Cheshire acre makes two English acres, and about fourteen perches over.

For experience sake, I once set some grains of wheat, four, five and six inches deep, laid others on the top of the surface, and I found that they all arose to the surface before they planted either in root or branch, and I found also that, which was laid on the surface got the start of the deep sown, and maintained itself the strongest.

I also buried a broad flat stone at the depth of four inches in the middle of a fallow-field, and sowed my wheat promiscuously over it, the same as the rest of the field, (this was to prove the depth of soil necessary for the roots to strike downwards) I found no difference in the corn as to goodness, but what grew over the stone was ripe, six or eight

eight days at least, earlier than the rest of the field.

The following bad consequences may accrue from plowing land too deep, particularly in the weter or colder climates of Ireland, and the northern and western parts of England, viz.

First, the best of the foil which is the upper stratum, is buried, and the bad under stratum turned up in its place, except the latter be the richest.

Secondly, there is double the quantity of foil to enrich, for certainly it will take as much more manure to enrich a furrow eight inches thick, as one four, it also takes more labour in ploughing, &c.

Thirdly, these four or five superfluous inches are lost when inriched, as corn never root, (or at least ought not) above four inches deep.

Fourthly,

Fourthly, corn never ripens so early or kindly, on loose, deep earth, as it does when it has a firm sole to grow on. The sole is the second stratum, or firm earth which lies next the corn-mould; the corn-mould or upper stratum is what we plow, or the grain grows in.

Lastly, the four or five inches of superfluous loose earth is soaked with water, and rendered like mortar, which being out of the reach of the sun to warm, in any reasonable time, keeps the corn cold and chilly, lying at the roots (as it were) like a sponge; indeed, it will give straw, but the corn never ripens early or kindly, having a thick weezend skin, but little substance.

I have heard people endeavour to support an argument in favour of deep ploughing, by saying they have traced fibres ten or fourteen inches deep; this I grant, might be the effects of deep

ploughing, by which means it encouraged the roots to strike downwards into a deep cold climate (as it were.) This is one strong reason why deep ploughing ought to be condemned, as it encourages or intices the roots out of their own natural, warm, richer earth, being the upper stratum, into a deep, cold chilled earth, which is the effect of a thick skinned, poor starved grain, and a late harvest; whereas on the contrary, if the under stratum was kept firm, and unmolested, the water would be obliged to return into the furrows, trenches, and drains, having little or no admittance into it, and the roots, instead of striking downwards, would run horizontally, and keep in a warm rich soil, being near the sun, to nourish and warm the plants, and the earth about them.

It should be the farmer's chief care, to assist nature all in his power, in order to get his harvest early, before short days and bad weather come on.

Tho'

Tho' reason joined with experience, proves that deep ploughing and trenching, is useless, and in a great many lands and places, of bad consequence; yet there may be lands and climates that may agree with it.

In the south of England, for thirty or forty miles round London, the climate is very warm, and the harvest, at least, six weeks earlier than in Ireland, or the north of England, being forwarded also with a warm, sandy, gravelly soil.

There is nothing more common than for labourers to go from the north of England and Ireland, reap the harvest in the south of England, and be at home soon enough for their own harvest.

This shews the material difference there is in these climates; then why should not different management be necessary?

There

There is also some lands in the south of England, particularly in the oil of Ken, in Kent, and in some places down along-side the river Thames, which consists of a deep rich lome, so that let one plough ever so deep, there is no danger of throwing up bad earth.

There is also such land in March-land in Lincolnshire, and in the fenny country along-side Trent; and in these lands, there is no doubt of good crops, provided they till sufficient to kill the weeds, the under stratum being as good, if not better than the upper in such land.

But this is not the case in most other parts of England and Ireland.

In Cheshire, the farmers cannot plow in some places above two or three inches before they come at a hungry poor red earth, by them called raml; when thrown up, will lye in lumps or clods

clods upon the surface, and not melt with either sun, rain or frost.

These farmers are very careful not to throw any such like up, as they have proved it to be very pernicious to corn, and encourage weeds.

I have seen such like thrown up out of potatoe trenches, in a great many places in Ireland.

In order to be convinced of the folly of over deep ploughing, observe a field under corn, that has been trench'd for potatoes, and it will be found that the corn, over the parts where the trenches has been, will be green when that on firm ground will be ripe. Indeed, the earliest is put backward, tho' in a less degree, by having this cold mortar, (as it were) lying at each side of it.

I can compare these potatoe trenches to nothing better than a hot bed reversed,

versed, for as we dig a trench and bury dung to raise an artificial heat, so are these trenches filled with the best of the soil and manure, while perhaps they are half full of water; and so lies (as it were) in a trough, which compleats an artificial cold bed.

But the evil does not end here, for, (as I observed) in ploughing too deep, in lieu of this good soil and manure, so buried in its place, there is thrown up a poor hungry earth which poisons the land, and encourages weeds.

So that, in short, there are so many arguments to condemn, and so many real evils for one good property, that attend ploughing and trenching too deep, that I wonder people's eyes are not yet open to see their error. Indeed I do not doubt but some of the more thinking sort, gets a stagger now and then, when they see such demonstrable proofs of corn growing green over these trenches, till Michaelmas per-

perhaps, and dung, &c. buried in them.

But prejudice in favour of an old custom, is so predominant, that it is hard to persuade men to enter heartily into a change. I have many a time represented these evils to farmers, and the consequences attending them, which at the time, perhaps, were assented to as right.

But notwithstanding, doubtless, they kept their old road. But indeed a weak argument will keep a man in his old beaten path, when a strong one cannot turn him out of it. It requires too strong resolutions to begin any new enterprize, namely, in him who gives the advice, and in him who is to take it.

For the giver, tho' he be ever so fully convinced, both by reason and trial in the goodness of the advice he gives, yet he dare not press it home, lest

lest it should be badly executed, and miscarry, by which the shame or blame would fall upon himself.

This makes a modest man who regards his character, give his counsel sparingly, (in a tell-tale manner) and not to urge it by protestations, and oaths which some men require, before they have faith to believe, or resolution to put in practice, tho' ever so much to their advantage.

On the other hand, he who is to take the advice perhaps, hears it with pleasure and surprize; nay, is persuaded it is reasonable, and determines to follow it; away he goes full of the change. But this volatile spirit soon evaporates, when he meets with his neighbour, John Old-road; methinks I hear the dialogue between them, viz.

Well, Harry Froth, says John Old-road, which way have you been? Been, says Harry, I have been hearing wonders!

ders! What a pack of fools we are, to go on in our old stupid ways, and can hardly live and pay our rents; yonder's neighbour New-invention, tells me, that a fortune might be made by a new scheme, and would advise me to follow it; I think it very reasonable, and will have a trial.

John Old-road scratches his head, and tells Harry, that new schemes will not do in this country; for (says he) I have lived these fifty years, and my father before me, and if there had been any better methods, they would have been found out before now; for my part, I will not be driven out of my road, to be laughed at, (if I should miscarry) for any one's whim.

This last part of John Old-road's advice staggers Harry Froth's resolution, and his airy spirits being evaporated, he follows his old path.

Vol. I.

S

I look

I look upon it, that a person who intends to execute any new enterprize well, ought not to be diffident in himself, but on the contrary have a bold, pushing, steady spirit.

But indeed the all-wise Being, orders every thing for the best; for, was every man of this temper, improvement would be at the height, in a little time; and when any thing is at the height, it will inevitably decline, for nothing can stand always in one position.

But as yet we are wholly on the improving side, and have room enough to rise much higher without apprehending a fall.

Let it be one of the farmer's chief cares to keep his crops of all sorts free from water, which is very destructive both to corn and grass, for tho' perhaps it may not absolutely kill the plants, yet it leaves them at spring, weak, and in a starved condition, so that a good deal

deal of the summer is spent before they recover themselves, which is sure to retard the harvest.

Neither does the evil altogether end in perishing the plants, for it sucks or washes the richness out of the ground, and leaves it of a poor starved hungry nature.

This shews how studious a farmer ought to be, in keeping his land dry, and free from water; and I look upon it, that the most effectual way is to follow the method that is taken in the north of England; namely, to lay the land in broad high ridges. See remarks on that subject.



C H A P. XVII.

*The Author's opinion on smutty Wheat,
and from whence it proceeds, and
it's cure.*

TH O' many authors has warmly and learnedly handled this subject, yet I humbly conceive, they have dropped short of the real cause from whence this misfortune proceeds.

I have turned over most authors on this subject, and find several have stumbled on a cure, though none has hit upon the right cause ; the strength of every argument is known by the reasons quoted therein ; neither can any argument be good or well grounded, that will not bear sifting or trying to the bottom.

In order to open the ideas of my reader as much as possible, I shall give mine, as follows.

In

In 1764, a paragragh appeared in the Dublin Journal, of a farmer in England, that sowed a field with wheat, one half of which was marled, and the other dunged; the dunged part was smutty, but that which was marled, was not. The said paragraph also desired an answer for the reason thereof. A similar case once happened to myself.

I sowed a field with wheat, the seed of which I bought at a distance; I pickled it in the common way, with salt and water only; I dunged the said field as far as my dung went, the rest I limed as far as that went, but was still short of manure for two ridges, which I spread over with foot and ashes. The wheat as far as the dung reached was smutty, the rest of the field was quite clear. This naturally led me to try to find out the reason thereof, and in examining the dunged part, by pulling up the stubble, &c. I found the ground particularly full of grubs

grubs or worms of several shapes and sorts. I make no doubt but these were the offspring of the usual inhabitants of dunghills, such as flies or insects of divers sorts which drops their eggs therein, and by the heat, fermentation, and putrefaction of the dung, these vermin is brought to life, and mischief.

By the nicest observations I can make, and concurring circumstances I shall quote, leaves me no room to doubt, but smut proceeds from a worm or grub; and if it be not the red or cut worm, it is of that nature. I have taken a small grub of that likeness, out of a root of smutty wheat, and has very often found rusty cankered traces of worms, in the roots of corn. About the last of May and begining of June, wheat is shooting into ear, and the ear is no sooner out of the stem or straw, but the skin of the grain is formed and filled with a soft pulpy milky substance.

At

At this crisis, the worm or grub, seizes upon the root of the plant, and feeds upon the fine particles or juices thereof, which ought to ascend to nourish, or feed the grain. But tho' so small a worm may not take in all the juices belonging to an ear of wheat; yet by making an orifice to feed out of, it wounds the plant, and gives vent to the sap; so that it bleeds, (as it were) itself to death. This is easy to be conceived in a similar case, viz.

Make a gimlet-hole in a birch-tree in spring, when the juices is all a-float, we shall find, that tree will bleed itself to death, if not stopped in time. The housewives in England spoil a great deal of this sort of timber, by tapping them thus to make their birch wine; and tho' a root of corn (by branching or stooling) produce thirty or forty stalks or ears, yet each ear takes in its nourishment from the main root, by a vein or leader purposely placed to feed thro'. Now, if the worm or grub should

should seize upon said vein, and feed upon what should supply nature, doubtless the milkey substance would dry, become a black powder, or dead substance ; nay, in short, I believe it very possible for one grain in the middle of an ear to be smutty, (by the same rule or reason) and the rest not hurt ; but I believe it impossible to account for this in any other way, than by a worm or some such insect, seizing the vein peculiar, or belonging to each grain.

I look upon it that there are three stages or periods in which corn may be spoiled by these vermin, viz.

First, when they prey upon it, after it is in ear, but before the grain is formed. When it is catched in this state, all the ear or chaff strips or falls off, and leavs standing a naked stalk ; this we seen often happen.

Secondly,

Secondly, (as above observed,) when the skin or bran-part of the grain is formed and tough enough to hold the soft milkey substance, before it is formed into a solid body, the vein is wounded, and nature stopped from fulfilling her office; therefore, what was already in the skin, for want of farther supply, dries and becomes a black, light, and lifeless powder, much like lamp-black; but as the skin or bran is tough, it is confined therein like, or in the form of a ball, and when it comes under the flail, it is burst and let at liberty, like dust among the corn, and hangs at the downy end thereof, so that when it comes to be ground, the flour and bread is made black, and disagreeable to the eye, but indeed not to the taste, as the palate cannot perceive any disagreeable taste it has: and, if the wheat could be thrashed or got out without bursting these balls, it would not be of much ill consequence, as the balls is so light,

that they might be easily separated from the heavy corn by several methods, therefore it is best for a farmer not to thresh but lash such corn, and winnow the seed, with as little mixture or treading on as possible. Another good way is to lease or pick the smut out before it is threshed, but it must be a nice discerning eye that does this, as some ears of smut is much like the good corn, and if one ear or two be left in a sheaf, it will spoil the colour of the bread.

The third stage in which it is seized, or obstructed in it's feeding or filling, is when the grain is about half ripe; then the worm seizes it, and being deprived of farther nourishment, it dries and shrivels up to a small wisened flinty grain, and tho' it is small, yet by its firm texture, one might expect it to produce a little meal; but upon inspection it is found to be almost as hard as a flint, and of no use. This is called by some of the English farmers, flints, and by others trucks.

The

The above considerations is more than a probability, that a worm is the cause of smut, yet I hope what is to follow will make it appear much stronger in its favour, viz.

It is allowed by most writers on this subject, that pickling wheat will prevent smut: this I readily admit, but however believe, that some pickles commonly made use of, will scarcely prevent it; and as firmly believe some others to be effectual. But give me leave to ask such authors, how they propose these pickles to operate? Do these authors, who believe that smut comes by a blast, imagine that pickle could prevent the wind from having any power over the plant? And was it not a very impartial pickle or wind that would not prevent all the English farmers field from being smutty as well as that part which was marled; like wise mine and several others which has had the like trials?

Again

Again, does the author who places the reason of smut to the account of not changing the seed, believe that if the pickle had power to prevent the seed, bought three or four miles off, from being smutty, that it should not have the same power over seed grown in his own land? Or does such an author really think, that it is any more possible for smut to grow or taint any other corn than lamp-black; seeing it is as utterly divested of every vegetating quality?

I have sown very smutty wheat, variously prepared, both with, and without pickling, but never saw that it was attended with any bad consequences arising from smut; and if I liked the seed, otherways I should never be deterred from sowing it, as it is clear to me, smut is not the occasion of smut, it being as possible for a bit of dry powder, out of a rotten stick to grow, or taint others as smut.

But

But now again, if we turn our eyes on the worms, we shall find it as clear as the noon-day, where the pickles operate to prevent them from feeding upon, or wounding the plant as above ; we shall also find, that the more nauseous or poisonous the pickle is made, the more likely it is to be effectual in its purpose.

Wheat being put into a tub of pickle, the skin or bran is the first that imbibes the liquor, and the thick glutinous part thereof sticks, clings, or gathers to the skin, and when the lime comes to be added, it incloses, coats, or candies the grain, by which there remains a kind of a crust, which retains its nauseous quality for a long time. Now we are to consider, that the skin or bran never grows or leaves the ground, but remains incircled with the root, which grows and spreads round it : this is a plain truth, which may be immediately proved by pulling up a root of stubble, and upon examination it will be found, that the

husk

husk is quite uniform, and nearly resembling a blown egg, having a hole at each end, one to let out the root, and the other the top; and, tho' the grain be buried deep, yet it will rise to, or near the surface, and generally stands perpendicular. The inside or floury part of the wheat, being all fled, changed or grown into root and branch, we might expect, that as the bran is left a dead lifeless body, it would putrify, rot, and fall to dust; but, on the contrary, it will (if the stubble be not trod or molested) preserve its perfect shape for several years; this is easy accounted for, as it is the pickle which preserves it, and the stronger the pickle, the longer it will maintain its strength, both of smell, taste, and texture, which stinking quality is susceptible to these delicate, diminutive creatures, whose sense of smell is the main guide they are possessed of, to conduct them to the food; and I apprehend it would be impossible for one of these worms

to

to live in, and feed upon a root of wheat that contains this stinking pickled bran or husk.

If a farmer do not dung his land, but enrich it by often plowing, as hinted in Chap. XV. it is a very great chance if he will have a grain of smut in his wheat. This is also easy accounted for, and makes good my opinion of worms being the cause thereof.

A farmer of my acquaintance had a field that was always subject to smut. I examined the land, and found it had been much dunged, was very rich, and crowded with many sorts of worms. At this time I was not acquainted with the pickle that will prevent it; and he had used the salt and water pickles to little purpose. I therefore advised him to plow his field every month in the year, when under fallow: which when he did, he soon cleared it of vermin. The crows, and birds of all sorts follow

low the plough, and picks up every insect they find. Again, the plough coming so often in a place disturbs and breaks up their nests or dens, so that they are prevented from breeding, and the old ones being exposed to the fowls of the air, their race is soon extinct.

This may plainly appear to be the case and cure for red or cut worms, so pernicious to green wheat.

It is well known to most farmers, that red worms is most predominant in fresh or new land, (that is) such as has lately been plowed out of grass; but upon old going-land they are seldom found, or at least, so thin as not to do much mischief. And how can this be accounted for, otherwise, than that, as long as the land lieth in grass, the worms can breed and feed un molested; but when disturbed, they meet with the above consequences.

This

This again shews the value of tillage, and how assiduous and active every one ought to be to promote it.

I hope the above reasons is sufficient to shew, that worms is the cause of smut, and that fallow, and proper pickle, will prevent it. (See pickle.)



C H A P. XVIII.

General directions for ploughing, sowing, harrowing, and mowing, or harvesting Barley.

IN October begin to plough your land for winter fallow, which is intended for barley, except turnip-land, and this must be ploughed as soon as the turnips are eaten off.

Observe to gather or raise your ridges high, in the middle of your winter-fallow, by which it will keep itself dry, so that it may be ploughed any time in winter, and the oftener it is ploughed, the better and richer it is made: take care that your land be got into sowing order by the first of March, as the best season for sowing barley, is from that to the middle of April.

April is the best season for sowing it, though some will sow 'till the middle of

May; but a good deal may be owing to the season, for it is better to wait a month, than to sow in a dirty, cold, bad seafon, as barley is a grain, above all others, that will not bear inclemency or hardship. It best to sowe in

If you intend to lay your land down with any sort of small grafts-seeds, such as clover, lucerne, &c. As soon as the barley is sown and harrowed, as above, then sow your grafts-seeds, and harrow it once in a place, with the harrow turned the wrong end foremost, that the pins do not sink too deep, which would bury a great deal of these small grains; but longer kinds of grass-feed, such as saintfoine, burnet, and the like, may be sown, when the land is about half harrowed for barley, and then harrowed along with it, by which they will be the better covered; and, being a huskey seed, they require it. When

the

the barley has been sown about a month, roll it.

Sow your barley immediately after the last ploughing, and harrow it well. Ten stone of seed is sufficient for an Irish acre.

As time is one great article, on which the farmer's success depends, in keeping his crop clear, he must take care it be well weeded, and throw the weeds into the furrows; being thus cleared from weeds, the business is over, till ready for harvesting.

As most persons know when it is ripe, I shall only say, that the chief token is to observe the joints of the straw; when these turn from a green to a dry straw colour, it is ready for cutting; but no corn is ripe, as long as the joints are full of sap, for those

are

are the juices which supply the grain with its last nourishment, which keeps feeding or filling, until the joints are sucked dry, and then the green cast, departs along with the sap.

**C H A P.**

C H A P. XIX.

On mowing and harvesting Spring-corn.

WHAT may be properly called spring-corn, is that which is sown in spring; such as barley, oats, beans, peas, buck-wheat and the like. These are all, what the English farmers call mowing crops, which is done by a cradle on the scythe; or, for want of this, an hoop made of a strong briar, sally, or the like; the root end of which is fastened in a hole, made by a spike gimblet, in the shaft, about eighteen inches from the heel of the scythe, and the top end of the stick must be brought with a bend over the heel of the scythe. The hoop must be crossed several times with a cord like net-work, in order to keep the corn from falling through. Upon trial, experince will teach him farther.

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On mowing and harvesting Spring-corn. 151

The mower being thus equipped, let him begin to mow, leaving the standing corn on his left-hand, that is to say, he must leave the swath leaning against the standing corn; and if he is a dexterous workman, he may leave it so even and straight, that a cross straw will scarce be seen.

After each mower comes a gatherer, with a reaping hook, or a small rake, which makes it into sheaves.

The complement for every two mowers and two gatherers is one binder; and these five persons day's work to mow, gather, and bind, is four English acres of fair standing corn, either barley, beans, blendings, or oats.

Being thus bound, it must be set up in stooks; the sheaves propping against each other, press the tops well together, in order to make them thin and sharp, which will shoo off the rain the better.

The

The farmers in England seldom put any covering sheaves on their barley-stooks, but leave the corn-ends exposed to all weather, believing the corn to harden the quicker, and more kindly; however, as Ireland is a wetter climate, I would advise the farmer to cover them at night, and uncover them in the morning.

After stooking, the barley stubble must be raked with a swarth-rake, so called from the length of its head, which is six feet, to take a swarth-breadth at a time. It has one row of iron pins, each pin eight inches long out of the wood, and three inches asunder. It has a handle in proportion to the rest of the rake, in which is fixed a belt to go about the man's shoulders, to draw it in the nature of a harrow. When he finds his rake full, he must lift it up, whereupon the corn drops out; he then goes on again, always leaving the corn in the same place or range, in the nature of a wind-row.

When

When the field is raked, cock the rakings like hay; and this is very useful to lay on the tops of the field-stacks, as it will lie better than sheaves and shoot the water off; but in England, they never stack their corn in the field, but let it stand in the stood till it is ready to take home to the barn or haggard. However as Ireland is a moister climate, believe it a very good way, particularly if the corn is to be housed.

N. B. Spring corn, such as barley, oats, beans, and pease, are all harvested the same way by mowing; therefore shall refer my reader for directions on those heads to the foregoing instructions.



The expence and profit, arising from an acre of barley, sown after turnips.

	l.	s.	d.
To 24 barrels at 9s. per. Total produce	10	16	0
To two plowing, if only with one man and two horses		0	5 0
To harrowing, sowing, rolling, and water furrowing		0	3 0
To chance of weeding		0	3 0
To seed		0	6 9
To mowing		0	1 6
To gathering and binding		0	1 0
To raking, with a sweat-rake		0	0 4
To stooking, carriage home, and extraordinary attendance		0	6 0
To carriage to the market, and expences extraordinary		0	6 0
To land rent upon a par		1	0 0
 Total expence	2	12	7
Clear profit		8	3 5

Note. The straw pays for the thrashing.

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A TABLE on Barley.

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The expence and profit arising from an acre of barley, by proper fallow.

To twenty-four barrels of barley, at 9s. per barrel.	Total produce	10	16	0
To ten ploughings, by one man and two horses, at 2s. 6d. per		1	5	0
To sowing, harrowing and rolling		0	3	0
To seed		0	6	9
To chance of weeding		0	3	0
To mowing		0	1	6
To gathering and binding		0	1	0
To swath-raking		0	4	0
To stooking carriage home, and extraordinary attendance		0	3	0
To carriage to the market, and other expences		0	6	0
To two years land rent, with the fallow year		2	0	0
<hr/>				
Total expence		4	13	3
<hr/>				
Clear profit		6	2	9

CHAP

THE

The following is a table of expence and profit, arising from an acre of barley, when sown after the common Irish husbandry.

To 16 barrels of barley at 9s. per	7	4	0
To two plowings with four horses and two men	0	10	0
To harrowing and sowing	0	3	0
To five bushels of barley for seed	0	11	3
To weeding	0	2	0
To reaping and gathering	0	6	0
To stooking, carriage home, and extraordinary attendance	0	3	0
To carriage to the market, and extraordinary expences	0	5	0
To rent	1	0	0
To lime or other manure	2	0	0
Total expence	5	1	3
Clear profit	2	4	9

C H A P. XX.

Remarks on the foregoing Tables.

I have been the more particular in laying down the three foregoing tables on barley, that the farmer may at one view, see that which affords the most profit, that he may be induced to copy after it for his own and the public good. And it appears very plain from the said tables, that there is no profit equal to that which comes after turnips; and particularly when he considers how easy a crop of turnips is got, and also the profit arising therefrom, as appears by the table under that head.

The next to turnips is that of fallow, as from it we are sure of a full clean crop; and that without any other manure than what the air produces, which indeed is the richest of all others.

C H A P.

C H A P. XXI.

On four different sorts of barley.

FIRST sprat or battle-door barley.

Second, long-ear'd barley.

Third, round-ear'd summer barley.

Fourth, round-ear'd winter, or by some in England called big; but its true name in Ireland is bere.

Were I to add any more sorts of barley a long chain of names (as is usual with some authors) it would be swelling my work into an useless chit chat, as every name that is added to those, is only explaining the same thing over again; for it is the different language, or rather gibberish of different kingdoms, or counties, which gives rise to so many names for one sort of grain. This may well confuse the ideas of a farmer who does not know how to account

count for so many names, as is given to the same sort of grain: May not this lead him to seek under a disguised name, for the very seed himself has growing.

The sprat, or battle-door barley, has only two rows of grain, by which reason the ear is flat; the corn is short, plump, and thin skinned, not inclined to have a long gross straw, (but indeed this varies according to the richness of the ground it is sown on;) it is said it will grow best on light sandy land, but I know it will grow well on any sort of land. I have had great crops on tough, strong, cold clay, or gravel-land, but such must be well pulverized, sweetened, enriched, mollified and warmed by tillage. Manures on such land, will not do for barley, without the cold, sour nature of the ground be changed by tillage.

The long ear'd barley, has a long ear, by which it may yield more corn under the flail; but the grain is small, and long, and has a thick skin; its choice as to the land and tillage is nearly to sprat barley.

Round-ear'd summer barley, is an excellent good yilder; it is a middle species, between bere, or winter barley, and sprat barley, therefore must be sown early in spring, the lands of Ireland are very suitable for it, provided they be well tilled; it has also a plumper, fuller, or bolder grain than bere, though not in this case equal to sprat-barley. It is not so delicate or tender as sprat barley, neither is it so hardy as bere; indeed it is my choice, next to sprat-barley, for almost any sort of land.

Bere, winter barley, or big, is most known in Ireland, or the north of Scotland, and indeed by their tillage it is most fit for them. I have held several

several arguments with Irish farmers about this grain, and I generally found the strength of their arguments to hang upon prejudiced old customs, believing, as their fore-fathers sowed it, tho' in darker days of improvement, that they would not be right if they did not follow their steps; and in short, it is as hard to shake their resolution from the pursuit of this their favourite grain, as from being drunk by the whiskey it makes. This bere is generally sown at the same time with wheat, and tho' slovins sometimes gets good crops, perhaps chiefly from the strength of manure, as they mostly sow it after potatoe crops, or on their rankest land, which would in fact bring onions, yet I observe those who manage better, has in general, bettes crops; and bring it nearer to the resemblance of barley for plumpness; but at best, it is far short of barley in value, insomuch, that it would hardly be sold in the English markets at any price, except for hen-corn.

It is a poor long, small grain, with a thick skin; but notwithstanding this, it is not without its good qualities, where it is used in its proper place. It is to be observed, that the poor of Ireland lives about eight months out of twelve on potatoes.

A potatoe garden for a poor family is generally about half an Irish acre; they keep no team, therefore cannot till the potatoe stubble fit for a crop of barley; for it is to be observed, that there is no more of the ground stirred, than what they throw out of the trenches to cover the potatoes with the bed on which the potatoes grow, lies unmolested till the third crop, therefore when they dig the potatoes, they sow the bere and shovels up the trenches to cover it with; which is all the husbandry it wants.

C H A P. XXII.

On different sorts of land for Barley.

BY the dint of plowing, good husbandry, and rotation of crops, any sort of land may be brought to grow barley; however some is better or more suitable for this crop than others, therefore I shall begin with the best first, and go regular on to the worst, which shall be placed last, viz.

First, loomy sand,
Second, loomy gravel,
Third, chalkey land,
Fourth, sandy land.

The above four sorts, produces a long ear, and short straw, a plump, stout grain, and thin skin, which is certainly the best sort.

Fifth, loomy, gravelly land, that lies over lime-stone.

Sixth,

Sixth, warpy land,

Seventh, black hasle earth,

Eighth, strong clay land,

Ninth, black mountain land,

Tenth, black, deep moory bottom

land.

The last six sorts of land, generally produce a long straw, and a small ear, a long small grain, and thick skin, but may be helped greatly, by tillage sowing thin, and to follow turnips.



CHAP. XXIII.

*On the management of Rye, both for
winter feeding, and a corn crop.*

THE management of Rye is very simple and easy, which few words will explain.

A farmer having stubble-land, and would be glad to have it under profit the winter half-year; let him plow it as soon as the corn is reaped, begin in the middle of the ridge, and gather or take it up, that it may lie very high, and dry; this done, sow three bushels of rye on an Irish acre; harrow it in, and by being thus early sown, the Michaelmas spring will push it up so forward that it will be mid-leg deep by December; but the best way, is not to turn cattle upon it till Spring, then other herbage being scarce, will make this more valuable. It must be eat off time enough, to sow such spring crop as you

you intend, but barley is the most suitable, as it will bear to be latest sown, therefore will give the rye more time to be eat off.

If you would have your rye to stand for seed, there is two seasons for sowing it, namely, at Michaelmas and February. The large winter rye must be sown at Michaelmas, and the small spring rye in February.

This spring rye is sometimes made use of amongst the English farmers; if a crop of wheat should miss, to sow it in its place in spring, roll your rye, (that is to stand for seed) in April, and if too forward, eat it with sheep, or calves, in the beginning of May.

As the farmer's success partly depends in keeping his crop clear of weeds, this as in others must engage his attention. As to reaping or harvesting rye, it is done in the same way as wheat. Grass seeds may be sown among rye, before it

it is rolled in spring, and will answer as well, as if sown amongst wheat: a crop of rye, is about the same value as a crop of oats, but it is a greater impoverisher of land.

The land most proper for rye, is that of a dry, open, loose, weak, sandy, or moory nature; and tho' strong land, of a good sort, will grow rye, yet other crops may be adapted for such land, which is more profitable.



C H A P. XXIV.

Remarks and illustrations on Rye.

RYE formerly was greatly esteemed in the light sandy countries of England, as the farmers thought such land would bring nothing else, but since the new husbandry of turnips and clover has made its way into the world, it is found that they change the nature of the land, and consolidates it in such a manner as to prepare it for a crop of wheat, which is much more valuable, than rye; however rye is still useful in its place; and particularly for that of spring-feeding, as it is of a quick growth and early spring; also a great creater of milk, which makes it particularly useful to feed early lambs on; and what still adds to its value in this case is, that the land most proper for rye, is that of a dry, light, sandy nature, which, if the weather be ever so wet, the rain no sooner falls, but it sinks through and leaves

the

the surface dry, therefore the lambs can feed and lye dry and warm, whereas if the ground was clay, such as would hold water, the consequence would be bad, in perishing the lambs, which would retard their feeding and growth.

Again, rye is the best of all other corn to sow on reclaimed bottom, bog, or mountain, (I say the best of corn) but I apprehend no corn is equal to turnips, rape or cole seed, for such reclaimed lands.

The great use for rye, is to mix it with wheat for bread; about two thirds wheat, and one of rye, makes well tasted bread, but black.

In this mixed state, it is called meslin, some sows wheat and rye mixed, which is called meslin: but I do not like this method at all, neither do I see any meaning in it; for in the first place, they do not ripen kindly together; besides

if the land will bring one ear of wheat, by the same rule it may bring two or more, and certainly wheat is a much more desirable crop, if it can be got on the same land. Notwithstanding rye is still useful (as before observed) in sandy countries, and for reclaiming bog with, where the farmer is obstinately bent against turnips and clover; rye makes good malt for the distillers, it being of a particular sweet taste or nature, therefore produces a great deal of spirit.

Again, the farmers in England make use of rye to bring their sows in season for the boar, it having a surprizing effect that way, so that they tell you, one peck of rye, will make a sow take the boar, be she ever so poor, or soon after pigging; others say, that it will have the same effect on cows or ewes. As to the truth of this I cannot say, but I have tried it on the sow more than once.

Note,

Note, there is only two sorts of rye worth the farmer's notice, namely, small, and big, and by others called winter and summer rye: the winter rye is a large full grain; but the summer rye is a small grain, and is generally sown in spring, and will be in as early at harvest, as that sown at Michaelmas. The winter rye is sown to stand the winter, is a hardy kind, and will answer either to stand for seed, or to be sown, and eat, for winter feeding. Rye straw is very good thatch or litter, but bad fodder for cattle.



C H A P. XXV.

Directions for ploughing, sowing, and harvesting Oats.

OATS is a grain that will grow almost on any kind of land, or with any kind of husbandry; but tho' sometimes tolerable crops are got by slovens, yet those who manage better may be sure of a larger return; and this is, or may be got, chiefly by tillage, and letting proper crops come in their right course of succession, by which means the one crop is a useful preparative to another.

If stubble of any sort be intended for oats, it is the better to be ploughed as soon as the grass is eaten off, which is generally about November, and then it being turned under, and the roots of the grass or weeds exposed to the frost, and the inclemency of the weather, they are killed, and instead of

of a nuisance, are rendered a great improvement.

The land must be ploughed, and the seed sown in February, or from thence, till the latter end of March.

I look upon twenty one stone of oats to be a sufficient quantity for any kind of land; for, though it is a grain that does not stool, or branch so much as barley or wheat, yet it corns in proportion to the nourishment it finds in the ground.

I am satisfied that one stalk, at twenty one stone per acre, will have as much, or more weight of corn on it, than two would have at forty two stone per acre. When it is sown, grieve and water furrow the land, to keep it dry.

When the oats is about three weeks or a month in the ground, if any grass seeds

seeds are to be sown amongst them, now is the time to sow them and roll them in.

The oats must be weeded about the middle of June; then any farther business is over until harvest, for which, observe the directions for it, under the head of mowing corn; they must be mown and harvested the same way.

Without doubt, by mowing, there are more fodder, and consequently more manure, besides all the hands it saves, which is a valuable consideration, at this busy season of the year; moreover, it should be the farmer's chief study, to work his lands with as little expence and labour as possible; and yet not to be so penurious as to stint his land of its proper due.

There is a medium to be used in all

all things, and also much to be said in favour of genius and contrivance, particularly, in farming matters, as it is of all occupations the most beneficial to man.



C H A P. XXVI.

*The explanation of three different sorts
of Oats.*

OATS, like most other grains, has got a multiplicity of names, to explain one and the same thing; but this (as observed in barley) is owing to a different dialogue or confusion of tongues, peculiar to each country or kingdom; in fact I imagine there is none more proper for the climates and lands of Ireland and England, than those viz.

First, the single English white oat,
Second, the Poland oat,
Third, the Scotch black oat.

If there be any others that varies from these, it is not because they are different sorts or species, but because they have been altered in either colour or size, by the nature of the ground or climate they have been sown in. However,

However, there is a particular choice to be made in all sorts of oats, which is very material for the farmer to know in order to heighten his success in this crop.

It is to be observed, that in most oats, there is some which grow in couples, (that is) a large and a small one together, but in some a great deal more than others. The English farmers who know the bad consequence of these double oats, is very careful in chusing their seed, to be all (if possible) of the single oat: and indeed they have just grounds for this nicety; as a barrel of single oats will weigh more by about two stone, than a barrel of the double sort. The oat grows double from three causes.

First, by being sown too often on one sort of land without changing. Seeond, by being sown too thick on the ground. Thirdly, by the ground being too rank, and when oats has once

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got into the double strain, they ought to besown no more, as it is hard to bring them back to the single oat again.

I look upon the English single white oat, to be the best of all others, for the climate and lands of Ireland, as it is a good yielder, both in corn and meal, and ripens even, which is a very material point in this crop, it being so subject to shed, or shake its seed.

The next in value, particularly for the wet, or cold lands of Ireland, or the north of England, is the black Scotch oat; this yields well, both in corn and meal, and is early ripe, therefore may be sown later, (if a cold wet spring) by three weeks, than any other sort; the meal also has a peculiar rich, sweet taste.

The Poland oat, is a fine, short, plump grain; the straw short and fine, but it will not turn out near so much corn on an acre, as the two former.

Again,

Again, it is very subject to shed, with the least wind, the top and best of the corn, when that on the bottom branches is green, particularly, if the land be cold and wet; but indeed on warm, gravelly, or sandy land, it ripens more even, therefore a farmer has a better chance to catch his crop before it sheds; but this oat must be cut, while the chaff or husk, on the lower branches is greenish, for if they be let to stand, till they turn as white as the top branches, half of the crop will be lost in harvesting.

A TABLE

The expence and profit, arising from an acre of oats, Irish measure, at seven yards to the perch.

	L	s.	d.
To 20 barrels of oats, at 9s. per	9	0	0
To plowing, twice, with one man and two horses	0	5	0
To harrowing, sowing, rolling, and water furrowing	0	3	0
To weeding	0	3	0
To feed	0	6	0
To mowing	0	1	6
To gathering and binding	0	1	0
To fwarth raking	0	0	4
To stooking carriage home, and attendance	0	3	0
To carriage to the market and expences	0	6	0
To land rent	1	0	0
 Total expence	2	8	10
 Total profit	6	11	2



C H A P. XXVII.

The management of Beans.

STUBBLE land is what is generally used for this crop, if you intend to raise it to the best advantage. Plow your land as soon as the crop of corn is off; and the first of February, if the weather permits, plow again; then sow your beans, at the rate of twelve pecks or three bushels to an Irish acre; but if you sow blendings, sow two pecks less, and mix two beans for one pea: when sown, harrow them in, but do not harrow the land too fine; if the beans or peas be not all covered, those that lye upon the ground will grow, and be the far-wardest, and as good, if not the best plants.

This may seem odd to those that do not understand it, but however, it is positively fact, which I have often ex-

experienced; and it also may appear to any farmer by his notice thereof.

It is well known that the seed of this grain rises to the top of the plant, and if they be covered too deep, it is hard for the seed to make its way through the earth; whereas, the seed that lies on the surface, has not that labour to go thro', but the damp of the earth, (if there be no rain) attracts the seed, and makes it strike its root downwards, in a very little time. As often as I have noticed this, I do not remember, I ever saw a pea, or bean lost, by lying upon the earth, that did not grow; indeed the fowls of the air, is a consideration that ought to be guarded against, as there is a greater danger to be feared from them, than from not growing.

Some farmers plow their beans under, but the above shews they would do better harrowed in. I have known several crops of beans to rot in the ground, in a wet season, and when they have been

been buried too deep, so that they could not make their way out of their cold situation before they perished; but this can never be the case by lying on the surface. I wonder the farmers do not open their eyes to these plain facts, since it is as clear as the sun, that they throw a great deal of seed, and labour away: how often have I seen farmers, throw a great deal of seed and labour away, by what they call dibblin; they go with a stick, and make a hole beside a bean, and lets it drop in, and thus they serve all beans that has miss'd covering with the harrow. Whereas, if they would send one boy, to keep off the birds, four or five days, they would prevent all that expence and trouble.

When the seed is sown and harrowed, water-furrow, gripe or drain your land, to keep it dry. Beans must not be rolled like other grain, as that would break and spoil them.

I must

I must remind the farmer not to forget to weed them; and then all further trouble is over till harvest. Beans is ripe for reaping, when the pods is turned black about half way up the stalk, but the top pods and upper part of the stalk, will be green. They are harvested the same way as Spring-corn, except, (instead of swath-raking,) what drops from the scythe must be picked or gleaned up, by a parcel of women and children.



CHAP. XXVIII.

Explanation of the Field-bean.

HERE is one sort of bean particularly worth the farmer's notice, and that is the small, round, black field-bean, by some called the magazine bean; it is nearly black, and has not a dint or flat place about it, except at the thick end where the eye is; most beans has two flat sides, but this is plump, full and round. It is a good bearer, and the straw is small, and excellent feeding for horses.

The next to this in value is, a gray bean, of a larger sort than the former; this is called by some, battle-door field-bean, by others large field-bean. It is shaped not much unlike a battle-door, or in the Irish phrase, a beetle; this requires richer land than the former magazine bean, so consequently is not so good fodder, neither is it so early ripe,

ripe, but it is a good yielder, and except the former sort, is the best bean a farmer can sow in the field.

The Irish farmers is almost quite strangers to the magazine bean, and as to the large field or battl-door bean, they sow it but in few places; they are too much attached to the culture of a garden-bean, commonly called the hot-spur bean. It is white, and the smallest sort of garden beans; it produces a strong-tasted coarse meal, and a gross stalk or straw, which a horse will not eat, neither is it a great yielder. I was once persuaded to sow some, and to look at it on the ground, it had a great crop, but the produce was in the straw, and not in the corn, and the straw was of no use; this bean must also have good land to grow on. In short, I believe it unnatural and unprofitable to be cultivated in the field as a horse-bean. As to the different sorts of garden-beans, I shall refer my reader to books of gardening.

CHAP.

C H A P. XXIX.

The most suitable land for Beans.

I Have hinted in my remarks on beans, that almost any land, by proper management, such as turnips and clover, may be made to bring beans. But, as much as may be said for genius, forecast, or management, yet some lands, are a great deal more suitable for this crop than others, which I shall point out as follows, begining at the best first.

First, deep, strong loom-land,

Second, strong blue clay land,

Third, strong clay gravel land,

Fourth, warp land,

Fifth, black hasle earth.

The above five sorts may be sown with success, with clear beans, if the farmer chuse it, but if he would sow peas among them,

them, they must be sown very sparingly, as the land will run them into straw, so that they will get the better of the beans, and weigh them down, and hinder them from corning well. But the three following sorts of land, being of a lighter nature, must be mixed with peas: proportion two beans for one pea, or the success will be doubtful.

Seventh, loomy sand land,
Eighth, red fox sand land,
Ninth, gravelly mountain, mixed
with black moory earth.

The three last sorts of land, is proper for peas alone; but beans is proper, and even necessary to be sown among them, by the way of roding; and if the beans was not to bear a single grain, they would add to the peas bearing, at least, one third more, and keeps the straw from the ground, sweet and clean: whereas, when the pea lyeth on the ground,

ground, the root end is kept always wet, and will be black and rotten almost, while the top is green, or perhaps in blossom.

Note, I mention the last paragraph on peas, purposely to save the labour of explaining therein a chapter by themselves, as there can be little more that is material said on the land proper for them.



C H A P. XXX.

Remarks and illustrations on Beans and Peas.

THIS is a crop that deserves the husbandman's attention as much in its place as most others. In England the farmers taste the sweets in the profit arising therefrom, which makes them so attentive thereto, that with them they are one of the principal crops, having a succession every year, except in some very light sandy countries; in such they substitute peas in their place, or perhaps sows blendings, that is, beans and peas mixed. All over England the value of beans is well known to every traveller, being as frequently called for as oats to refresh the wearied horse with; the due proportion for a feed, is to mix half a peck of oats, and a quarter of a peck of beans together; indeed some will feed with half and half, others with all beans; however I believe half beans, and half oats is the best

best feed. They are also made great use of, to feed bullocks, or milch cows with ; to the former, they are a great fatner, and to the latter, a creater of milk ; when they are used for these purposes, they are splet, that is, half ground, and mixed with bran, or oats, but then the oats must be bruised in the mill also.

It is to be observed, that corn of any sort, given to horned cattle, if not bruised in a mill, will pass through them whole, and therefore be of little use, as they cannot chew like the horse-kind.

The next great use in beans or peas, is for feeding hogs, as they give a firmer texture, and finer flavour to the flesh than any other feeding whatever. Also, the straw and pulse of the common horse, or field bean or pea, is very good fodder for the horse kind.

In

In short, they are so valuable a crop for farmers, and so useful to mankind in general, that it is very astonishing, the Irish should be so blind to their own interest, as not to sow them more than they do, particularly as the lands through the whole kingdom, is extremely fit for them.

Many an argument I have had with gentlemen, and farmers, in most parts of this kingdom, in favour of this crop; and it's amazing to hear the weak objections made use of to fright themselves (as I may express it) from sowing this valuable crop.

Some would not sow them, because they thought their horses would not eat them: others was apprehensive they would blind their horses: a third believed they would give their horses the gripes: a fourth, imagined the straw of no use: a fifth, liked the crop, but was affraid to sow it, as the poor people would steal it, &c. &c.

The

The former objections, is answered as above, where I have explained their value, to which I call any experienced farmer to witness: and here I farther add, I do not know them to have one disagreeable property whatever, in the use they are for. As to the last objection, of the poor stealing them; this might be removed in a great measure, by making them more general: for the more that would be sown in a neighbourhood, the less, a few taken thus, would be missed; besides it is not above a month or six weeks, (which is from being full to taking home) that they lie under the mercy of pilfering; and would it not be well worth a farmer's while, to watch them at day time, and at dark night they could do little hurt. Again the peas and beans blossom, affords a plentiful food in a country for bees to lay in their winter stock from.

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I have likewise heard Irish farmers say, that beans is a gteat impoverisher of land; but here again I imagine they are mistaken, for I believe them to do less hurt to ground than any other corn, except peas. It is a proverb amongst the farmers, that tho' the land be poor, if they can get a good crop of beans or blendings, they are sure of a good crop of wheat on the same land the year following.

But let me further remark, that I do not think either beans or peas, sown each by themselves, will afford so much profit to the farmer as when sown mixed. I know by this assertion, that I shall draw the censure of some of the English farmers upon me; such as are very careful to keep the beans clear from peas; however no argument is so good as when supported by strong reasons. Another thing, I shall have about three fourths of all the farmers in England on my side, who at present practise sowing blendings, tho' their land

land may be strong clay, and they will find their advantage in so doing.

The due proportion for any land, (except it be a very light blowing sand) is two beans for one pea; by which means, they will be (without doubt) a standing crop, as the beans will be, (as it were) a rodding for the peas; in this case they are assistants to each other; for as the peas is kept standing, and an arch over the top of the bean, the circulating air is admitted round them to assist in feeding the corning part thereof. The beans, when sown alone, admits of grass or weeds to grow among them; and these encroachers takes on, or impoverishes land worse than the beans themselves; but the peas being substituted in the place of the weeds, by such œconomy, the land is burdened with nothing but what will enrich both herself and her master.

It is past contradiction, that a crop of blendings (be the land what sort it will) will

will produce considerably more corn, than if either was sown separate. In England farmers has a very good opportunity to try experience in their common town-fields; but as an explanation thereon may not be disagreeable, read it in the next Chapter.



CHAP. II.

C H A P.

II.

A Table of expence and profit arising from an Irish acre of beans and peas being sown together, is called blendings; the proportion of mixing for sowing, is two beans for one pea; and in this state, they will produce more corn to the bushel, by about one fourth, than if each was sown separate.

	l.	s.	d.
To 20 barrels or 80 bushels of blendings at 10s per barrel, total produce	8	0	0
To two ploughings with one man and two horses	10	5	0
To sowing and harrowing	0	2	0
To chance of weeding	0	3	0
To seed, 3 bushels	0	7	6
To mowing, gathering, and binding	0	3	0
To gleaning	0	1	0
To stooking, carriage, and extraordinary attendance	0	3	0
The straw pays for threshing	0	0	0
To land-rent	1	0	0
To carriage and market expences	0	6	0
<hr/>			
Total expence	2	9	6
<hr/>			
Clear profit	7	10	6

C H A P. XXXI.

*On the good effect and explanation on
open Town-fields, as in England.*

A Town-field consists of several hundred acres, without hedges, ditches, or other fences, to divide one man's land from another, tho' a hundred farmers may have land in said field, yet none will have perhaps above one or two ridges lying together in one place, but alternately mixed or interspersed thro' the field, insomuch, that a farmer has no way to know his own ridges; but by cutting the first letter of his name or some figure, in a bit of grass at the end of his ridge, and in order that one shall not incroach or steal from another with the plough, they measure the breadth, as every man's ridge is of the same size, whether they be rood, half acre, or acre ridges, they being generally laid down with some proportion of measurement; the reason they are thus laid out in small parcels, and in-

intermingled, was that each person should have his chance of good or bad land, as it might vary in one of those large fields.

Most towns have five of these fields, of which one will be fallow, another wheat, another barley, another beans, or peas, and another oats. Every year the farmers takes care, never to sow one sort of grain twice together on the same field, but keeps alternately changing, so that one is a preparative for another, and each field gets its regular fallow, every five years, and thus they are kept in tillage, from generation to generation.

Each farmer is obliged to concur with his neighbour, in this regular course of tillage, particularly in the fallow and winter crop, as the fallow field is common for the cattle, all the fallow year; likewise the wheat field is fenced in at Michaelmas: whereas the fields that

that is to be sown with spring corn, may be kept open till April.

A farmer may substitute in the place of any crop, one of his own chusing, provided it stand on the ground no longer than his neighbours, as they keep a regular time of laying their fields common to the cattle, and fencing them in.

There are some towns, that may have only three or four of these fields; if this be the case, they fallow the oftener, and is confined to fewer sorts of crops: but of late years, they have found a good method of sowing turnips in the fallow year; in this case they begin to plow the stubble under, as soon as harvest is in, and keeps ploughing for a winter fallow, till midsummer following; then sow turnips, and eats them off by April; then sows barley, after barley beans or peas, after these, wheat, after wheat oats, and again begin with turnips: thus they get a valuable

valuable crop, and fallow the same year.

My Irish, and indeed some of my English readers, may think it a sort of a hardship for these farmers to have three small parcels of land, thus intermixed, and not at liberty, (altogether) to occupy them as they please: nay, in short some of the farmers who hold said field lands, is so much dissatisfied with their lot, that they have applied, and obtained acts of parliament, to inclose their said fields.

However, I see this quite in another light, and should consider it, rather as a misfortune, were all the town-fields in England inclosed; for if we consider tillage in its most truly deserved light, we shall find in the countries where it most flourishes, to be the most rich, happy, and independant.

In short, a corn country gives bread for people of all denominations around

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it, and work and bread enough for all the poor within it; it is from these open field countries in England where most of the corn is raised, that supplies London and other great and foreign markets; but were those fields inclosed, instead of corn, the land would be engrossed by rich farmers, and turned into grass; then consequently corn would be scarce and dear, and the poor would want both bread and work. I know this to be already the consequence where some fields has been inclosed of late years.

If the said lands be kept for tillage, it is plain they are in a better state than if inclosed in small fields, as corn never grows better than in an open exposure, not to speak of the loss of ground taken up in the ditches, &c. But while the land is kept in the open town-fields, the farmers are obliged to keep them in a regular course or succession of tillage. Again, let me remark,

remark, that I believe these open or town-fields to be a great spur to improvement in husbandry.

How often have I heard farmers make their remarks in passing the ends of perhaps, two or three hundred ridges of corn belonging to as many people, and say John Such-a-one's corn is good, he has a good ploughman, and has managed well; when perhaps the next ridge belongs to a worse manager, therefore immediately censures him thus: Thomas has managed bad, his ploughman is bad, or he has not plowed it often enough, or he has not sown it right, or rolled, or weeded; or wherever the fault is, it is sure to be found out and condemned by the sharp-eyed neighbours, and the owner shamed into a better manager; so that (in short) it fires every one with an emulation to out-do each other, and even extends itself to the very servants.

With

With what pleasure have I beheld two or three hundred teams, plowing in a field, every one striving to shew the best work after him: how often do they make wagers (of perhaps a few quarts of ale, or the like,) which is the best plowed ridge, their masters to be the judge. Thus they strive to excel each other thro' the whole branch, as who keeps their teams in best order, and best geared, who sows best, so that the corn come up evenest after them, who mows best by leaving the stubble even cut, &c. who makes handsomest sheaves, who makes handsomest stooks, or has the fewest sheaves blown down after a high wind, who makes the handsomest loads of corn upon a waggon; for if a load fall from the waggon before it arrives at home, the loader forfeits something at the harvest-supper; also if a driver overturns a waggon, he forfeits a goose at the harvest supper. They often make wagers likewise, which team will draw the

the largest weight, also which is the most dexterous driver. To prove this they will lay a tenpenny nail in a turn in the road, and those that drive the waggon-wheel the truest over it is proved the best driver, and then the ricks of corn in the haggard are a standing witness who is the best stacker.

Again, if a farmer (more curious than common,) introduce a strange crop on one of the ridges in this town-field, there is immediately a jury of farmers over it, and if in the end it prove of utility, it becomes general, as their land is all alike.

In short, I know not whether these town-fields may not inflame the spirit of improvement equal to a premium, since there may be the same ambition of excelling in one as another, as well in the little as the great world; so that in short, I believe these town-fields

fields is the greatest spur to improvement of any thing that could be invented, which every judicious observer must admit.



CHAP. XXXII.

The management, &c. of the white and blue boiling Pea.

THIS sort of pea, is chiefly raised for the food of mankind, and is used for puddings, &c. It is only here and there, we can meet with land suitable for this crop; for though it may produce a full crop, and good looking peas; yet if the land be not natural for them, they will not boil soft, therefore they are of no value, but for cattle.

The land most likely to answer for them, is a dry sharp sand, or gravel, but experience must be the farmers guide herein; for if two pieces of land be both alike, to a man's thinking, and only a hedge parts them, yet one may bring a soft good boiler, and the other not.

The

The season for sowing them, is about the middle of March, they must be managed in every respect, as the grey pea; they are generally sold about the same price of wheat. I have known more than once, twenty pounds an acre made by a crop of them; besides the crop is generally early enough reaped for the land to sow turnips on the same year, which is another great advantage; cattle do not like its straw so well, as that of grey pea straw.

There is two sorts of this pea, but both answers the same end nearly; and the land that will produce one a boiler, will not miss in the other; one is called the blue boiler, being of a blueish cast or colour, and very small and round, and without any dints in them.

The other is called the white boiler, is generally a little larger than the blue sort, this is also round, and is not dintered, it is not quite so much valued as the blue sort.

They

They are both of the early hot spur kind; the seed must be changed every year to chuse, and that which comes from the south of England, is generally the best, the land being in that country, a very warm, sandy, gravel: The farmers raise great quantities to send abroad, and finds their account in it.



C H A P. XXXIII.

The management and perfection of the grey field Pea.

TH E R E is two sorts of peas which may be cultivated in the field with success.

First, the common grey field pea, raised for the sustenance of the brute creation, answering the same end, or made use of for the same purposes, as field-beans. (See chap. 28.) The next is a boiling pea, I shall treat of it in the next chapter.

The grey pea, delight most in a light gravel, or sandy land, but if sown with beans, (which will be a roding for them) they will grow with success on strong lands, but the richer the land, the greater need they have for support.

ST A H C E

F. J. V.

Sow

Sow the poorest land you have with peas, as they will enrich the land, and on such poor land they corn the best for when the land is too good, they run too much to straw, and the more straw the less corn.

Oat or barley stubble, if the land be poor will bring a good crop, provided you give it a couple of ploughings in autumn, and winter, but if the land be in a good heart, you need only plough the stubble in, just before sowing.

They may be sown with success, from the first of February to the first of April, but about the begining of March is the best season.

The land being ploughed, sow the peas at the rate of eight stone to the acre, Irish measure: when sown, water furrow, and grieve the land. This crop must not be rolled; in May, is the time to weed them.

Peas

Peas is ripe for reaping, when they turn black eyed within the pod. If they happen to be a short standing crop, they may be mown, else they must be reaped and rolled, or laped up in round little bundles, like a sheaf of corn: thus they must be left in single lumps, or sheafs till they are enough weathered and dried for stacking, or houseing; but while they are on the ground, they must be turned two or three times, lest the under part of the sheaf grow.



C H A P. XXXIV.

Directions for ploughing, sowing, and management of Buck-wheat through all its variations.

THE chief use of buck-wheat in England or Ireland, is for manure, though some make use of it for bread; but it is very ordinary bread, not much better than that of pease; it will feed hogs, but pease are full as good, and will yield more corn on an acre; besides they are a surer crop, as they will grow on almost any sort of land.

I will say so much however, for buck-wheat, that where it hits, and is a full crop, it is the finest thing for manure that I have ever seen. I once had a crop that, when it was rolled down, gave a task to a horse to walk through it, and the land gained so great advantage from this dressing, that the

pro-

proprietor has good reason to remember it. The plant is very luxuriant and predominant over any weeds; so that the benefit does not wholly lye in the dung it makes, but in its being an effectual clearer of ground from weeds.

The land that suits it best is that of a light soil, of a sandy gravelly nature, tho' in truth, (except a very strong clay) any land will bring a crop, provided it be well tilled to a fine mould.

Any sort of stubble that is intended for it must be winter-fallowed, ploughing it early in Autumn, in order that it may meliorate with the frost, &c. and again, as soon as it begins to shoot in the spring, and the last time in April, just before sowing. The middle of April is the best time for sowing it.

When ploughed, before it is sown, harrow it once in a place, in order to level it, that the seed may not be buried

ried too deep; then sow the seed at the rate of three bushels to an Irish acre; after which harrow it very fine. When harrowed, roll it; then you have no more to do with it till it is fit to plough in for dung, which is when full in blossom about midsummer.

This is done by first rolling it down the striping way of the plough; and then plow it in. If the land be for turnips, as soon as the dung is rotten, (which will be about ten days) be plowed in the fulness of sap or juices, plough it up and harrow it once in a place; a man must follow the harrow with a rope tyed to it to shake it, lest it drag the dung in heaps. Being thus harrowed, sow the turnip-seed, and roll it.

But if the land be for wheat, let it lie unploughed 'till the grass or weeds begin to grow. Then plough the dung up, and in a proper time after, sow

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sow the wheat, and plough it in with
the dung.

If you intend the buck-wheat to stand for seed, treat it in every respect like peas, as it is harvested the same way.



C H A P. XXXV.

Directions how to raise Rape and Cole-Seed, and also how to manage Burn-beating, &c. &c.

I Shall treat of these two seeds under one management in the same chapter: as they are nearly of one quality, all the difference is, that cole-seed requires the greater depth of soil.

Rape and cole seed are very profitable, where they meet with land that suits them, which is a black and deep soil; cold rushy bottoms, bog, or deep mountain is very good, provided it be duly pared and burned.

For pairing and burning, (by others called burn baiting) take heathy, boggy mountainy, or rushy, wet and cold low ground, the more ling or heath, and coarse grass, the better. If it be

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for reclaiming of bog, follow the directions under that article.

If the ground be deep, and will allow it, pare a sod two inches thick, in order to raise all the ashes that is possible; but before you begin to plough or pare for burning, take a roller six feet long, in this fasten three belts of iron, quite round the roller, at two feet distance; these belts, or rather cutting knives, as they are to perform this office, are about the breadth of a scythe, and are to have prongs to drive into the roller, so that the edge will stand upright.

With this go across the ground intended to pare, which, when pared, it will turn up in sods two feet long, and save a great deal of labour of cutting by hand; the knives may be taken off, or put on occasionally, and the roller will serve for other uses, of rolling corn, &c.

About

About the middle of April, begin to pare, and do not miss an opportunity of burning the sods when once dry, which will be in three weeks after cutting, if the season be not wet; but in a wet season, they must be set upon an edge, and they will dry the readier.

Being thus dry, and ready for burning, make heaps of about a cart-load in each, with the grass side downward; lay them as light and hollow as possible, that they may burn the readier.

Put some sort of kindling under, to set it on fire, such as straw or sticks, &c. but little will do, if there be any rough stuff such as heath, rushes, &c. on the sods.

The way to burn it to the greatest advantage, is not to let the blaze break out, but keep smothering within, for

the more it blazes, the more of the nitre ascends into the air.

Being thus burned, spread the ashes and plough them under, with a very thin furrow, at the most, not above two inches thick; then harrow it, and when harrowed pretty fine, sow the seed. After sowing bush-harrow it.

A peck and a half of seed, is the due for an Irish acre, which is about one third larger than an English one. Take care to water-furrow and gripe it well.

In the spring, weed it, and where it's too thick, pull up some plants, and transplant them in thin places, if any there be; if not, throw them away. Some will hoe the rape, but I take this to be a superfluous piece of labour.

The most famous place in England for raising this crop, is in the fenny countries,

countries, and they never hoe any ; but I have seen farmers in other countries, take great pains in hoeing it, but this may be partly owing to their being strangers to the right management ; and to their taking over-abundant pains, through a fear of not doing enough.

The chief thing is to sow it even, and till well ; there is then no fear of a crop ; for the plants coming up thick, and having a broad leaf, smothers the weeds, covers the ground, and keeps it light and mellow ; so that in this case, I see but little need of hoeing. I had a field one year, and in order to be satisfied, (which was the best way) I sowed a piece in drills and hoe'd it with the plough ; and another piece I hoe'd by hand. I did not thresh it separate, but, in all appearance to the eye, there was no great difference, or at least, not any ways equivalent to the labour it cost me ; but in fact it was all as good a crop as could well grow.

Where

Where there is not bnrn-baiting, a good crop may be got by summer fallow, managed directly in every degree, as for wheat, with the same manures, &c.

One advantage in sowing rape, is this, that the seed costs a trifle, perhaps not above 18d. an acre, and if it hit, it is a valuable crop, and should it miss, the loss of seed is insignificant, and the land can be sown with barley at spring, as there is time enough to discover what kind of a crop the rape will be before barley-seed-time.

Observe that it is ready to reap, when the upper branches turn brown; be sure let it not be too ripe; of the two evils, the least is, to reap it too soon, rather than let it stand too long, for if the pods be in the least dry or rash, they will open in reaping and shed the seed.

Birds

Birds of all sorts are very fond of it, therefore it must be watched for a month before its reaping, to the end of threshing; it is not altogether the value of what they eat, but in opening a pod, perhaps they will not get above one grain, and all the rest will drop out.

It is reaped in the same manner as wheat, but the handfuls are laid singly and light upon the stubble behind the reapers, thus it must lye without stirring till it's ready to thresh, which will be in about three weeks after reaping; for it must be very rash or dry, or there will be a loss in its not threshing clean.

Being thus ready for threshing, prepare a floor in the middle of the field, or most convenient for the carriage, by leveling the ground, on which must be spread a large reap-cloth, in the nature of a winnow-sheet, on which the rape must be threshed.

Spread the rows round, and thresh round. One man spreads before the threshers, another turns it after them, a third shakes off the straw, and a fourth carries it away. These four men are to supply six threshers and four carriers in; with four to fill the sheets, and one to rake off the pulse and riddle them. These set of people being in all nineteen, will thresh six or seven acres in a day.

It is better to proportion the labourers according to the quantity of rape you have, that it may be dispatched in a day or two, as rainy weather may prove obstructive, but if the rain should happen to catch you, throw up the corners of the cloth and cover it with pulse, such as stays in the riddle, which will turn rain extremely well.

There is no need of taking the seed off the cloth, but keep threshing upon it, 'till all is done.

Some

Some will sell the seed to the oil-mills as soon as winnowed from the cloth; others that do not want money, will heap it up on the floor, mixed with chaff, and covered up with the pulse, so that it will be round and sharp at the top like a hay-cock; and thus they will let it lie, perhaps two months, till it gets a sweat in the chaff, which is very necessary, for being of a clammy oily substance, it would turn mouldy when clean in the grainary, if it did not get a sweat in the chaff, as above; but this precaution will prevent the said evil.

It is immaterial to say any thing about winnowing it, as it is easily done by any one that can winnow flax-seed or corn, as it is only suiting it with sieves to the size of the seed.

The straw was thought of no value formerly, but rather a nuisance in England, but of late years, the ashes it makes are found to be valuable for

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making soap; and the soap-boilers will buy the straw, perhaps two or three months before it is reaped, and will give from three to six shillings per acre, according to the quantity that may appear to be thereon.

About the latter end of November, if the rape be strong, so as to bear eating (which you may judge of by the strength of the plant, or grossness of the stalk) turn sheep in, and eat it till Candlemas, provided you do not overstock it; but take care that they do not eat the stalks too near; they ought to go no farther than just to eat the leaves off, without entering on any of the body stalks, for fear of wounding them too deep.

Cole-seed may be eaten a great deal safer than rape, as it produces a grosser stalk; and when all the leaves are eaten off, about Candlemas it makes fresh shoots, and produces larger heads than

if

if it had not been eaten; and, if the land be good, and deep, it will produce a more profitable crop than of any other grain whatever.

I have discoursed with several farmers in England, that know no other difference between cole and rape-seed than the name.

It is true, that the seed is nearly alike, and no difference is made in the price to the oil-mills, as they produce one sort of oil; but there is a material difference in the plant, and it is the advantage of a farmer to be well acquainted with it too.

The cole-seed is a species of cabbage, originally from Holland. It produces a very large luxuriant plant in good ground; it will produce a stalk like that of a cabbage, and the seed in proportion to the size of the stalk. A very full crop will turn out a last on an acre.

When

When the sheep have eat the stalks bare, it is an easy matter to take them up, where too thick on the ground, and transplant them.

I once took as many superfluous stalks out of three acres, as transplanted an acre, which bore as good a crop as the rest, only a little later. .

I am certain, a very great advantage might be made in this method, in the manner following, viz.

It is to be observed, that land for rape or cole-feed, is fallowed all winter, and 'till the time of sowing, which is the latter end of June, or in July, by which means the rape takes up the land this year, and 'till it is reaped, which is about the latter end of June the next year; therefore it is too late for sowing any sort of crop but turnips, when the rape comes off.

Now

Now suppose you had half an acre of good land, or made it so by dunging it better than common, and tilling it a little extraordinary.

At the proper season of the year, which is at mid-summer, sow on this half acre, one peck of either rape or cole-seed, but to chuse, cole-seed.

Now, we suppose this to produce a very plentiful crop of plants, perhaps very few grains would miss; thus let them grow till Michaelmas, and suppose you have ten acres of either wheat, bere, barley or oats, as soon as the corn is reaped, plough the stubble; let it lye a month or six weeks to rot, and then plough it again; this will be near as good as summer fallow.

About Michaelmas, turn sheep into the half acre of plants, to eat the tops off; then begin at one side of the field of stubble-fallow, and plow a furrow; in

in this furrow, set a row of these plants, a foot asunder, leaning against the side of the furrow; then plough another furrow against it, make the furrow about a foot broad, so continue till all the field be set.

If the land be good, there will be no need of dung, &c. but if it be poor, have rotten dung in the field ready laid in heaps; take baskets and lay a little at the root of every plant, about the size of a large potatoe will be sufficient; by this means a little dung will go a great way, and not any of it will be laid in vain, as every plant will have the good of it.

This is a mighty ready way of transplanting; except the ploughing, it will not cost above two shillings an acre. The plants will be the better for leaning on one side. About March, if the mould be drawn up to the stems, they will be the better, tho' they may do very well without.

I do

I do not doubt but there are as many grains in a peck of rape seed as will set, at a foot distance from each grain, a hundred acres, therefore without doubt, there will be as many plants as would plant ten acres at the same allowance.

When the reap is reaped, sow turnips. This is getting three profitable crops, and part of a summer's fallow, in two years; and the two last crops are of an improving quality.

It is true, I never saw this method put in practice by any other person. However I made trial of one acre in this way, and it proved an exceeding good crop. This experience joined to the reasonableness of the thing, makes it clear to me, that a farmer by this management, might make great profits of his land.

If it should be a busy time about Michaelmas, the transplanting might be

be defer'd till the beginning of February, and keep the land fallowing all winter; and indeed, I doubt not but this is full as good a season as Michaelmas, and the land may be kept fallowing, as I observed.

The spring planting, will drive the crop a little later; but I am convinced, that there is no doubt of the plants growing, from either seasons: it is my opinion, not above one in an hundred would miss.

I should be glad to see this profitable piece of husbandry put in practice, as reason speaks so clearly in its favour.

What a fine affair it would be for a farmer, to make ten or fifteen pounds an acre, of his stubbles, the land the better for it, and the expence not above three or four shillings per acre?

If

If it should miss, the loss is scarce worth notice, and the land will be the better for the fallow at any rate.

I assure my readers, I shall make a large adventure in this way, this year; and shall not fail, if God permit, to acquaint the public with my success.

The middling produce of an English acre of rape, is half a last; it sometimes happens that an acre will produce a last; but it must be very good. Cole-seed will very often produce a last, as the increase is something more than that of rape.

A last is ten quarters or twenty barrels, or eighty bushels, Winchester measure.

N. B. The cloth for carrying the rape to the threshing floor on, is fix feet broad, and eight feet long. To the two opposite sides are fastened two

poles to keep the sheets stretched. Two men carries the sheet betwixt them, each man a pole on his shoulder; every two men must have two sheets, one to be filling whilst the other is carrying to the floor.

It is a piece of good management, and saves a year's loss of land, to sow rape on flax stubble, provided it can be got off before the last of July; the land must be twice ploughed and well harrowed.



C H A P. XXXVI.

On the management of Turnips 'till ready for feeding Sheep on, with proper fencing, to pen the Sheep on the Turnips when feeding.

TURNIPS are a very beneficial crop, and a great improver of land, particularly if they be eat on the ground with sheep. In England, it is always allowed, that a good crop of turnips is as much profit to a farmer, as a good crop of wheat; besides they are an excellent preparative for a crop of barley and clover.

It may with great truth be said, that the land gets a fallow, a good dressing, and produces a valuable crop, and this all in the course of one year, and the expence of the seed is only six-pence per acre. There is this advantage

tage too, that any sort of land may be made to bring turnips, by tillage and manure, or by paring and burning.

Begin to plough your stubble that is intended for turnip-fallow, in autumn; drean and water-furrow it, that it may lye dry all winter. Plough it again the first of March, and as often after as the weeds or grass begins to grow; about the twenty-fourth of June is the proper season for sowing; a pound of seed is sufficient for an Irish acre; observe to sow it when it is likely to rain.

If you intend to have any manure, it must be laid on before it is ploughed the last time, and then plough it in with a very thin furrow, that the turnips may have the benefit of the manure.

It is in any case wrong to bury manure too deep; harrow it well before you sow the seed; after sowing, roll

the seed in, which is better than bush-harrowing.

It is by much the cheaper and better way to take great pains in sowing them thin and even, than be at the expence of hoeing.

I may be thought here to be wrong, for, says my reader, hoeing is of service to lighten the ground, and cut the weeds, as well as thin the turnips. But as to the weeds, it is much better to pull them up than to leave the roots in the ground to grow again, which is the consequence of hoeing. As to disturbing the earth about the plants, I cannot think it of service equivalent to the labour it costs, also turnips love to have firm ground to grow on, and they are generally the best that turn and apple, quite above the ground, only trusting to one small leader, or root which strikes downwards: a forked root is never so good as a single straight root.

one; and it is generally in light ground that these forked roots are found.

This is the reason why the English farmers recommend rolling in the seed so highly when sown, instead of harrowing it in.

I have often heard unthinking men say, that it was no matter how thick the seed was sown, as they intended to hoe the turnips, not considering that it is from their very infancy that the dint of damage is sustained; for a turnip ought to spread the top round it, upon the ground, at the first coming up; by which means it will turn or apple very young; but this cannot be the case when they are sown thick; for instead of spreading, they draw one another up, tall and weak; and, instead of appleing, the bottoms run up like parsnips.

This is the evil they fall into before they can be hoe'd at all; and if they

they be drove too late, the evil is yet greater; for the goodness of the turnip generally depends upon the good turn it gets when young.

When these tall, weak, aspiring tops come to be thined to eight or ten inches distance, their weak constitution cannot bear the sudden change, but droops their heads and looks sickly, 'till kind nature, which has been busy in drawing up the top, descends again to assist the root; this change however admits of delay, for certainly there is a stagnation in growing, when they are stopp'd by hoeing, from running into the top, in order to supply the bottom; and a week's stoppage in growing, at this time of the year, is of bad consequence, not to speak of the bad turn they get in appleing, &c.

What I have said may be proved, almost in every turnip-field, where chance has scattered a grain of seed, to

to an outside, next a path, &c. I say this joined to the above reasons, will prove that sowing thin without hoeing, is preferable to sowing thick with hoeing.

If this be the case, the expence of hoeing, which is very great, particularly by hand, is in a great measure thrown away.

I would not be understood to condemn hoeing entirely, this would be going too much into the opposite extreme; but I should be glad to recommend such precautions and methods to the farmer as may save him as many hands as possible; for surely it will be allowed, that he is the best manager, who can raise the best crop, with the fewest hands; and the precaution of sowing turnip-seed thin, as that they may need little or no hoeing, is a great saving.

Neither

Neither is it altogether the money that is to be considered, but the difficulty of procuring labourers who are hardly to be got for money at this busy season of the year; and what adds to the evil, is that the hoeing of turnips always falls in harvest.

It mostly happens, that where people are strangers to a business, they are diffident in themselves, and thro' a fear of under doing, they often run into the other extreme.

About twenty or thirty years ago, turnips were not so general in England as now, then the farmers took great pains in hoeing them; indeed they sowed them so thick on the ground, there was no avoiding it; but now their eyes are opened, they have more sense than to throw abundance of seed away, to create themselves labour, at a time when they ought to be in the harvest field.

There is not a farmer in ten, now-a-days, that hoes his turnips.

As the land was either fallowed, or burn-baited, it is presumed there are not many weeds; and if there be, it is better to pull them up by the roots.

As to manure for turnips, there is none equal to ashes made by burn-baiting; and they are larger and sweeter from ashes than any other kind of manure, which makes burn-baiting a valuable piece of husbandry for profit, and reclaiming four coarse land, provided the directions under that article be kept up to; as the burn-baiting for turnips must be managed the same way as for rape. See rape.



CHAP. XXXVII.

On eating Turnips on the ground with Sheep, and a full description of proper fences for pening thereon, &c.

ABOU T the middle of Decem-
ber is a good time to turn wea-
thers into the turnips, and if possible,
let the first turning in be when it is a
frost, for then they are hungry, and will
the sooner take to eat them ; an Irish
acre of good turnips will feed twenty
sheep.

Confine them to what they will
eat in a week, and do not break a new
piece before the old be clean eaten
off.

Send men with forks to throw up
the bottoms or shells, that the sheep
may come easier at them, to eat them
clean up.

There

There are several kinds of fences to fold or confine sheep to turnips; such as sheep-bars; netting and hedging; the most common of those in England, are sheep-bars; these are the readiest shifted, the best fence, and indeed the cheapest, considering how long they last.

There is not much ingenuity required in making them; the chief thing is to make them light and handy, so that a man may carry half a dozen on his back at a time; for as they are often shifted, their own weight will break them if made clumsy and heavy.

Another fence is netting, but this is only for a country where wood is scarce. This is more expensive, and not so easy shifted, particularly in a hard frost, which often happen in turnip time.

As

As posts or stakes are hard to be got either up or down; whereas if the points of the bars only just enter the ground, so as to keep them from slipping, they are propped up behind with a forked stick, and will stand very well.

Where there happens to be sheep with horns, they are very apt to get intangled in the net, if it be not kept well stretched. I have known several lost by such accidents.

The net is made of cording, about the size of a jack-line; the marshes are about four inches square; a cord about half an inch in diameter, is stretched and run through the top of the net, and goes throngh holes bored in the top of the stakes or posts, which are set fast in the ground at five yards distance; the bottom of the net is tied with a pack cord, to the bottom of each stake, to keep it in full stretech.

I was

I was once travelling through Scotland, and happened to be in company with a gentleman who had net-fencing for his sheep, but the frost was then very hard, so that he could not get the net posts up or down; therefore he had just turned the sheep into all his turnips.

I told him, by this he would destroy half his crop, as the sheep would scoop the top, and leave the bottom to hold water, which would soon rot them.

In short, I advised him to make faggots, (as he had brush-wood enough) and make one end broader than the other, and to set the broad end downwards, and let them lean against each other, which (except a very high wind) will stand very well without stakes, make a good fence, and be a great shelter.

I hap-

I happened to be again in company with the same person last summer. He told me he took my advice, threw his nets aside, and stuck to the faggots ; for, says he, they are the readiest and best fence that can be made use of, as half a dozen men will make a sufficient quantity in a day ; besides, when the season is over, they are good fireing.

Those who have brush-wood enough, would do well to follow the said directions, it's no matter how simple the method may appear, provided it answers the end proposed.

As the sheep will, or ought to have their turnips eat by April, they may be sent to the market ; or, if you have clover, they will pay very well for keeping, till the latter end of May, as the markets is advancing till that time ; after which you may lay the clover up for meadow, and have a good crop of hay.

In

In short, if a farmer manage his affairs right, by laying in his stock of sheep in a proper season, and buying what we call half thicks; he need not doubt of doubling his money, and sell them off in April, when the turnips are over: if he keeps them longer on clover, he may expect a farther advance, besides he is at no expence of harvesting, &c. and his sheep carry his crop to the market, and the land is well manured, cleared of weeds, and in good order, for two other profitable crops, namely, barley, and clover.

Lay-land, summer fallowed out of the sod, is a sure preparative for turnips, without any sort of manure.

Indeed summerfallow, for grafts-land, is an excellent piece of husbandry, being the best dressing land can have, and is sure to bring a crop of any thing, let the land be ever so poor afore-

aforetime; the roots of the grass and weeds or whatever has grown in it, being dispersed and mingled with the sod, when they come to be turned up to the sun are stopped of vegetation, by which means they rot, and are rendered a manure of the richest kind, every fibre is full of nitre, and enriches the particles of earth that clings about it.

It is a doubt to me, but three inches deep in grass-land, has as much bulk of weeds or grass-roots, &c. as of mould, and if so, what a dressing must it give to such land when rotten.



A Table of expence and profit of an Irish acre of Turnips, when eat off by sheep.

There is no doubt, but a tolerable acre of Turnips, will feed twenty such weathers, as will cost in Autumn, twelve pounds a score, and by the common course of things, there is likewise no doubt that when fat, and by the advance of markets, they will give in April 24l. a score, which leaves profit to the farmer - - 12 0 0

If they grew upon fallow, I allow eight plowings, which if done with one man and two horses, will be worth 2s. 6d. each plowing.

To harrowing, sowing and rolling	1 0 0
To seed	0 5 0
To forking up the turnips, and attending the sheep, in shifting the bars, and giving hay, &c.	0 0 6
To two load of hay, 5 Ct. in each	0 15 0
To market expences, driving, Sales-master, &c.	0 12 0
To half a year's interest for twelve pounds	0 10 0
To land rent	0 6 0
 Total expence	1 0 0
 Clear profit	4 8 6
	7 11 6



side T A

C H A P.

C H A P. XXXVIII.

Remarks and illustrations on the foregoing Table, together with the method of feeding Bullocks, &c.

IT is a common thing with the farmer's in England, to make double the price, of their turnip fed sheep in April, (cost what they will in Autumn) and I am quite clear, the Irish farmers has as good a chance to make as much profit, if not more, as their land and labour is cheaper; and let the markets for fat cattle, be high or low, the markets for lean, bears nearly the same proportion in every country.

I have given good allowance in said table, for all labour or attendance, as I would not leave it in a farmer's power to even think that I would flatter him into any scheme, by shewing a great profit at the end of a tot up, without allowing

allowing him sufficient for his labour, while he is executiug the same.

Again I have omited in the table, taking notice of the sheep dunging the land, by eating the turnips, which may justly be accounted worth thirty shillings an acre, and the fallow is thirty shillings more; therefore we may moderately deem the land three pounds better for this dressing, and this too, without the loss of a fallow year; also a farmer gets the profit of his land in his pocket in April, and he could not expect it much sooner, had it been under any sort of corn: all these considerations a farmer ought to bear in mind; for if he do not impartially reckon every thing, that makes for, and against himself, from the seed going into the ground, to the money coming into his pocket, he never can be a right judge what scheme to pursue for his own advantage.

Feed-

Feeding bullocks on turnips is another method practised by some farmers; but this falls short in profit of the sheep feeding scheme, for tho' bullocks clear double their first cost, and make as much produce out of an acre, yet the expence is greater in attendance, for they are tied in a house, therefore the turnips must be carried to them. Every twenty bullocks will take two horses, and two men to attend on them.

Again the land loses the benefit of the manure, being very considerable in what it would gain by sheep. It is true, bullocks makes some manure, but it is very inconsiderable, as the turnips passes through them, chiefly by uring.

The bullocks that is fed by turnips, must never be watered, or go out of the house from their first being put in, till they go to the butcher, for the turnips supplies them with water enough; and if

if they be let at liberty, to run or play, it will heat, and disturb their bowels, insomuch that the turnips will pass through them too quick, before they have time to fulfil their office by digestion.

They will eat the turnips the better to be washed and cut in pieces, about the size of a midling potatoe ; a man must twice in twenty-four hours, take some hay under his arm, and give each bullock two or three mouth-fulls, out of his hand ; about half a pound at a time will be sufficient to clean their mouths of any dirt or gravel.

Some farmers manure their meadow lands, by feeding sheep upon it with turnips ; but though they gain in one place, they lose in another, and they also add a multiplicity of labour and expence thereto, by pulling up and carriage, which they will very sensibly feel, in fifteen or twenty acres of turnips : however, every one knows their own

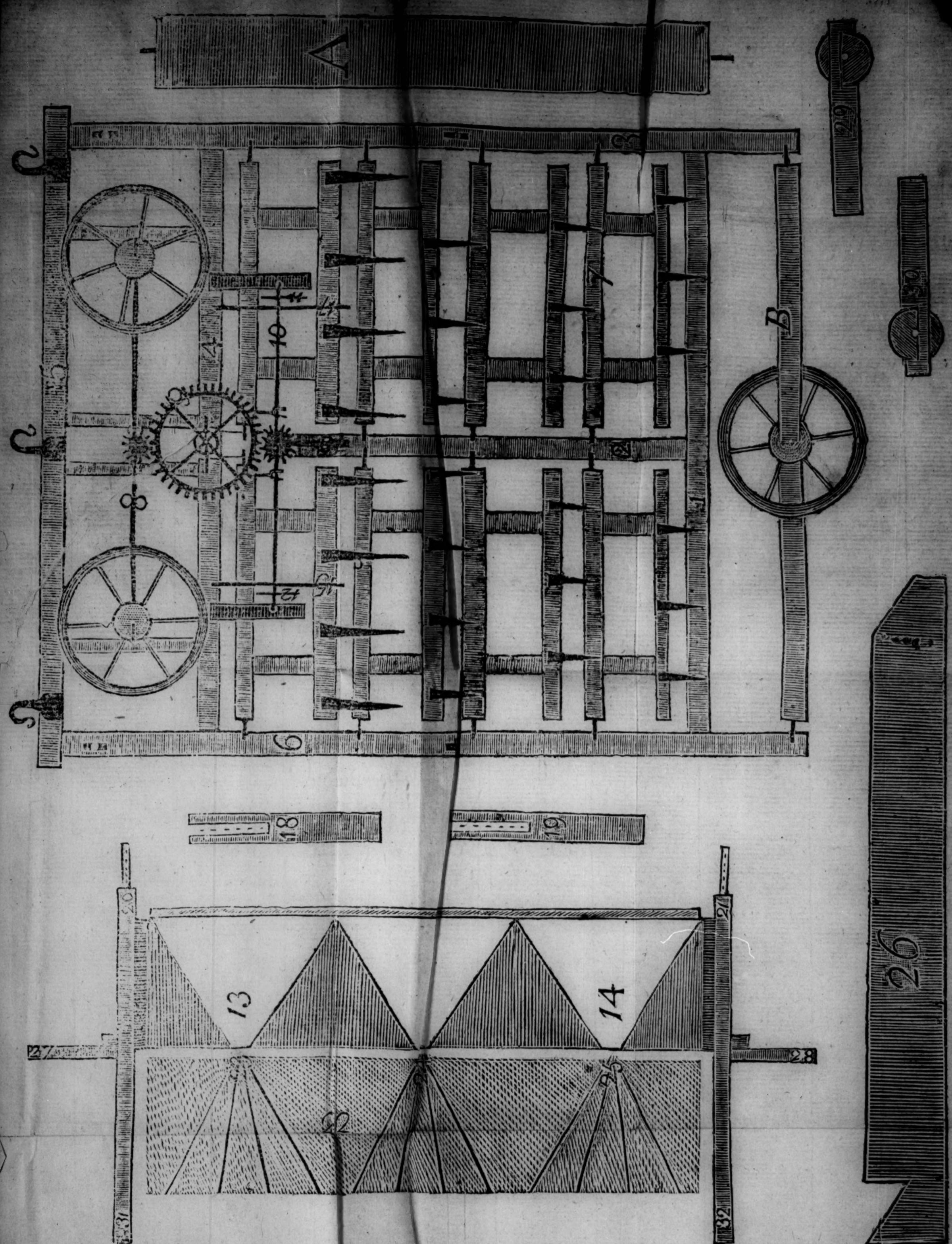
own situation the best, if he be distant from dung for his meadows, this method of feeding sheep upon them, will give an excellent dressing. But in this case, the farmer's contrivance must be, to have a succession of turnip land, round, or near his meadow land, in order to save carriage and cutting his land and roads, which is a very material point in this ponderous loading, and which must happen in the depth of winter. Some feed their cows and dry cattle on their meadows, but this is a bad way, for the cattle spoils and treads the land; neither is turnips a proper feeding for cattle that run about, no more than for a working bullock.

End of the First Volume.



A circular seal with a decorative border. The text "BRITISH SUGAR REFINING COMPANY LTD" is arranged in a circle around the center. The year "1868" is prominently displayed in the center. On the left side of the seal, the number "30" is visible, and on the right side, the number "68" is visible. At the bottom of the seal, the letters "JUN" are written.





Explanation of a Machine, for Sowing, Harroving, and Rolling at one Time, with one Man and two Horses.

THE Perfection of this Machine will evidently appear, when it is proved, that it is both a Saving of Seed, and wrought with little Expence. This was my Intention when I first set myself about it. Any Thing less its Value, if the Expence over balance the Utility, let the Invention be ever so ingenious. What Merit is it for a Gentleman to say, that he has improv'd his Lands to a great Pitch, when perhaps they have cost near as much as the Purchase is worth. This Machine is also very useful for harrowing Moss from the Roots of Grafs, in Meadow or Pasture Land. When it is us'd for harrowing Moss, the Hopper and Machinery are taken off, and nothing appears but the Harrow, the Frame of which is supported by three Whe'ls, every three or four Pins as may appear by the Cut, rise and fall, and gives way to a Hill or Stone, without disturbing any other Part of the Harrow. There is a sufficient Room or Passage for Clods, or Stones to traverse between the Pins, tho' they are fixed so as to cut within two Inches and a half of each other; the remotest Row of Pins are the largest. This Machine will sow any sort of Corn, or any Quantity on an Acre, from sixteen Pounds upwards; and it can be made to sow either in Drills at any Distance, or in the broad-cast Way. The Roller A, may occasionally be put in the Place of the Wheel B, which follows the Harrow. 1, 2, 3, 4, 5, 6, is the Frame (supported by the three Whe'ls) which the Work stands upon; as 7 are all alike into which go, Gouging which give the Pins Liberty to play up and down. 8 is an Iron Axletre on which is fixed a Cog-wheel that turns the Wheel 9, and the said 9 turns the multiplying Wheel 10, on which multiplying Wheel are two Flies fixed, 11, and 12, these Flies strike against the Bottom of the Hoppers 13, 14, which rise up the three Hoppers, (being all in one Piece) and lets them fall upon 15, 16, 17, this shakes the Corn out. 18, 19, are Standards which 20, 21, are fixed upon, with a Pin to alter higher or lower, 22 is a Spread-board, which is fastend to the Hopper with Hinges. On the Spread-board are nailed four pins which go up to the Mouth of each Hopper 23, 24, 25, the Hoppers discharge thro' a Passage of one Inch Board, but the front Board 26, which goes before the Mouth or Front of all the three Hoppers, can be raised or lowered from the Thickness of a Grain of Wheat, to six or seven Inches high; this is done by the two Slopes at each End of the Front Board, which lies on Shoulder, in 27, 28, 29, 30, are Standards in which are Pulleys, to which are fixed a Strap of white Leather, which is fastened to the Hopper 31, 32. The three Hooks at the fore Part of the Machine are to fix two Horses of a Draft, the two inside Traces hang upon the middle Hook. The whole Work is laid down with a Scale of one Inch to a Foot.

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E R R A T A.

Page 136, the last line, for seen read
fee.

Page 148, line 7, leave out the words
as time is.

Page 170, line 17, for effect read effect.

Table on white flax, read page 81.

THE DEX

А Т А Я Я Е

